CITIZEN
Micro HumanTech

DIGITAL PHOTO PRINTER

Technical Manual

OP900II

Version 1.00

CITIZEN SYSTEMS JAPAN CO., LTD.

●Concerning Copyright

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●Concerning Safety Warnings

Warnings regarding safety and use, as well as the contents of the Technical Manual, conform to standards existing as of the date published.

●Other Cautions

There may be discrepancies in the contents of this manual due to changes in unit specifications.

The explanatory illustrations and pictures in this manual are meant to assist in maintenance procedures, and may differ from the actual appearances.

This document does not include everything necessary for maintenance.

This manual is not meant for people without prior skills and knowledge regarding the device. Lack of skill or knowledge of the device could lead to maintenance problems or damage to the unit.

●The contents of this document may be changed without prior notice.

Introduction

Thank you for purchasing this printer.
This document explains how to handle and operate the Photo Printer.
Please read this manual before using the printer.
Especially important is reading the “For Safe Use” section (pg 2-4) to insure proper use.
Please refer to the user's manual for the setup of the printer.

For Safe Use

- Before use, be sure to read this manual thoroughly. After reading, keep it in a safe place, so it can be referred to as needed in the future.
- The warnings listed here are for the safe use of the printer, and are meant to minimize the danger of any personal or property damage to the customer or other users. Please obey them.

■Regarding “Warning” and “Caution”

Listed below are foreseeable results of misuse of the printer, which have been classified as “Warning” or “Caution” depending on the level of danger and the possibility of occurrence.

	This indicates situations where, if not observed, misuse could “have the potential to result in death or serious injury”.
	This indicates situations where, if not observed, misuse could “have the potential to result in injury or property damage”.

■Regarding Symbols

The symbols used have the following meanings.

	This symbol calls attention to contents of warnings and cautions. Details are indicated in or near this symbol.
	This symbol indicates prohibited actions. The prohibited actions are detailed within the symbol.
	This symbol designates necessary actions, and relevant content. Details of the actions are shown within the symbol.

Warning

- Do not use with other than the designated voltage and frequency. Doing so could cause electric shock or fire.
- Do not overstress outlets with too many power cords or plugs. The outlet could overheat and cause a fire.
- Do not damage, cut, alter, or bundle the power cords. Also, placing heavy objects on, pulling on, or bending the power cord could cause damage, resulting in electric shock or fire.
- Do not set up in places with salinity or corrosive gases in the air, as it could cause a fire.
- Do not block the air vents on the printer. Heat could be trapped in the printer, causing malfunction or fire.
- Do not stand on or place heavy objects on the printer. Also, do not use excessive force on the switches, buttons, and ports. This could damage the printer or cause injury.
- Be careful not to hurt yourself or cause damage with the edges of the device.

- The printer weighs approx. 14kg. When moving it, be careful to lift it so as not to cause physical injury. Lifting carelessly or recklessly could cause it to drop, resulting in injury.
- Set the printer up as close to the outlet as possible, and in such a way that it is easy to unplug in an emergency.
- If there is dust on the plug, be sure to remove it, as it could result in a short circuit.
- If liquids or metallic objects fall into the printer, or there is smoke or strange odor, immediately turn off the power, unplug the printer, and contact a service representative. Do not continue use in case of malfunction. It could result in electric shock, fire, short circuit, or injury.

- Be sure to attach the earth. There could be a short, causing electric shock or fire.

- Do not handle the plug with wet hands. This could result in electric shock.

- Do not open the printer, disassemble parts, or modify the printer. It could result in electric shock or fire, or injury, or malfunction.

⚠ Caution

- Do not put in places with excessive humidity or dust. It could result in fire, electric shock, or malfunction.
- Do not set in an unstable location. The printer could fall and cause injury to the customer or other people.
- Do not put foreign objects into the printer. It could result in shock, short circuit, fire, or malfunction. If something should fall into the printer, turn off the power, unplug the printer, and call a service representative.
- Do not open the cover while printing. This could cause a malfunction.
- Do not spill or spray liquids or chemicals into the printer.
- When cleaning the back of the printer, do not use thinner, trichloroethane, benzene, ketone-based cleaners, or chemically-treated cloths. It could cause discoloration.

- At least once a year, unplug the printer, and remove any dust from between the prongs. Accumulation of dust could cause a fire.
- When using continuously for long periods of time in a small room, make sure there is ample ventilation.
- When disposing of the printer, peripheral items, packaging, or media, please observe local ordinances. For details, refer to your local government offices.

- When unplugging the printer, be sure to pull the plug. Pulling on the cord could damage it, and result in fire or electric shock.
- When moving the printer, be sure to unplug it first. The cord could be damaged, and result in fire or electric shock.
- If not using for a long period of time, for safety purposes, please unplug the printer. Otherwise, it could result in electric shock, fire, or malfunction.

- The thermal print head gets very hot. Do not touch the thermal print head directly after printing. It could cause burns.

General Warnings

- Before using this printer, please read “For Safe Use”, and follow the instructions listed therein.
- Be careful not to drop paperclips, pins, etc, into the printer, as they could cause malfunctions or damage.
- Use care when moving or setting up the printer. Dropping it could cause injury or damage to other property.
- When cleaning the back of the printer, do not use thinner, trichloroethylene, benzene, ketone-based cleaners, or chemically-treated cloths.
- Avoid using the printer in places with excessive oil, iron particles, trash, dust
- Do not spill liquids or spray chemicals on the device.
- Do not step on, drop or strike the printer, or otherwise apply strong pressure or shocks.
- Be careful not to hurt yourself or cause damage with the edges of the device.
- Make certain the power is turned off before connecting/disconnecting the USB cable.
- Avoid lengthening the signal cable or connecting it to any noise-producing device.
  If it is unavoidable, use a shielded cable or twisted pair for each signal.
- Use a USB cable with shielding suitable for the USB 2.0 specification.
- When disposing of the printer, peripheral items, packaging, ribbon, or paper, please obey local ordinances.
- For details, refer to your local government offices.

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Chapter 1 Cleaning

Alcohol that can be used for cleaning

・Ethyl alcohol (reagent ethanol grade 1, absolute ethanol, etc.) (99.5v/v%)

・2-propanol (IPA, isopropyl alcohol) (99.5v/v%)

⚠ Caution

・ Except for the specified alcohol cleaners, do not use other agents such as benzene, thinners, etc. as these could damage rubber and resin parts..

Cleaning the Platen Roller

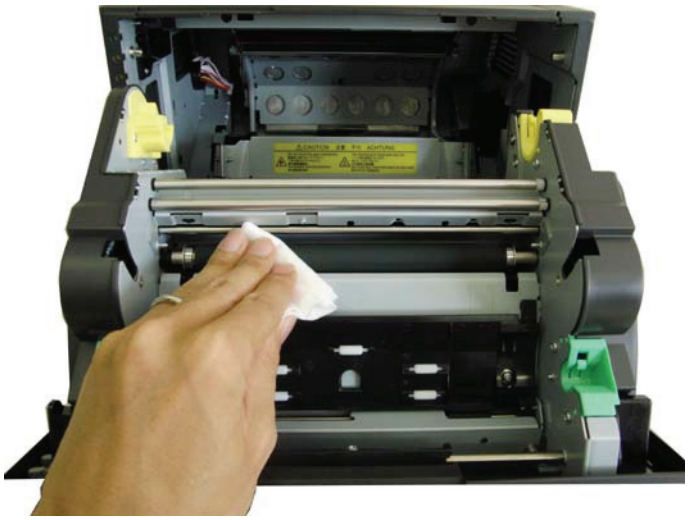
⚠ Caution

・Be careful to avoid injury and damage due to the sharp edges.

If any impressions appear regularly in the same place on the prints, or if there are marks on the back (white side) in the same place on the prints, please clean the platen roller. There could be powder, paper scraps, or other grime from the ribbon, etc., on the platen roller.

1. Use gauze or some other soft cloth moistened with ethyl alcohol.
   Only use ethyl alcohol. Never use benzene, thinner, etc, as they may permeate the resin.

2. Wipe any dirt off while rotating the platen roller.

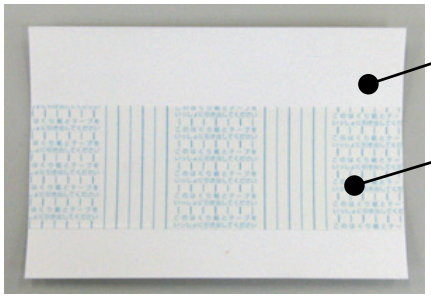


Cleaning the Grip Roller and Pinch Roller

Caution

・Before performing maintenance, turn the power OFF, and unplug the power and USB cables.

【Advance preparation】Create of cleaning sheet.
Create a sheet of paper with double-sided tape on it (**on the back of the sheet** when printer is initialized).

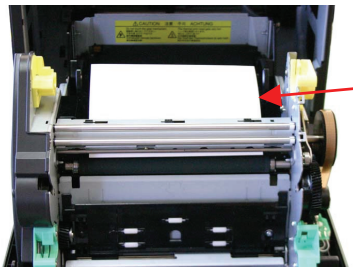


Paper（Back）

Double-sided tape
Width : 50mm
Strength : Normal～Strength
Recommended : Nichiban Co., Ltd.
Nice tack NW-50
3M Scotch PGD-50 etc.

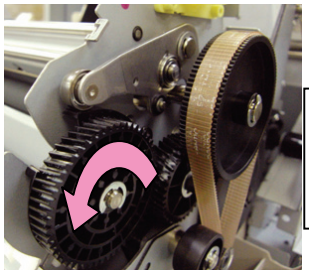
1, Open the printer and remove mecha cover R.

2. When cleaning the grip roller, insert the paper into the printer with the double-sided sticky tape facing down. (For the pinch roller, insert the paper with the double-sided sticky tape facing up.)

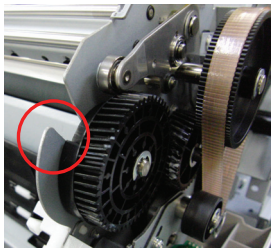


Double-sided sticky tape face down (for the Grip Roller)
Double-sided sticky tape face up (for the Pinch Roller)

3, Turn the cam in the direction of the arrow, and align the hash-mark with the metal edge. (So the media can be advanced.)

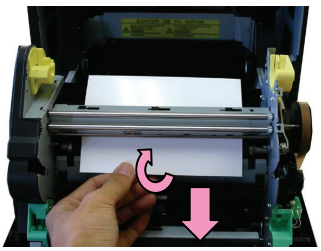


Turn the cam in the direction of the arrow.

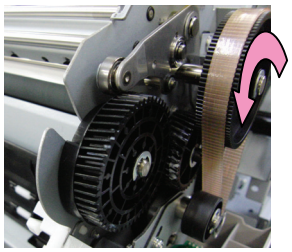


Hash-mark with the metal edge.

4 , Lifting the media forward so the double-sided tape doesn't tough the platen roller,turn the grip roller in the direction of the arrow and advance the paper.

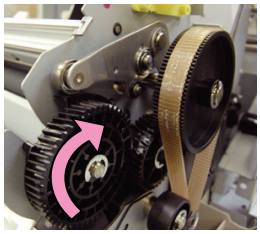


While lifting the bottom of the paper and pulling towards you ・・・,



Turn the grip roller pulley.

5 , When paper was advanced from edge a little forward, return the head cam to its original position, and close the mecha cover R to finish the process.
Promptly return the head cam to its original position. Not returning it for a long time could lead to print problems.



Cleaning the thermal head

When dirt has adhered to the print head, the unevenness of print and the poor fixation of print may occur.

1. Prepare a piece of gauze or other soft cloth soaked in alcohol.
2. Wipe the thermal print head gently, without touching the thermal print head by the direct hand.
3. When dirt cannot be removed, it wipes about five times back and forth with a polishing sheet.
(Suggested polishing sheet: Japan Micro-coating head polishing film GC#10000)

Caution

- Never use benzenes or thinners other than specified alcohol, as they may permeate the resin.
- Before cleaning, always switch off the printer. Otherwise, there is a possibility of becoming causes, such as an injury and a burn.
- The thermal print head will be hot just after printing. Please wait for the print head to cool off before beginning cleaning.

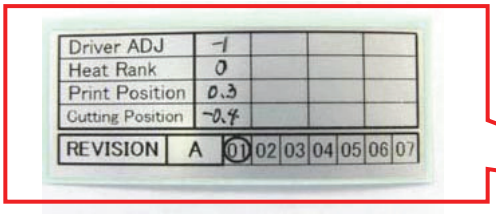
Chapter 2 Disassembly・Reassembly

Caution

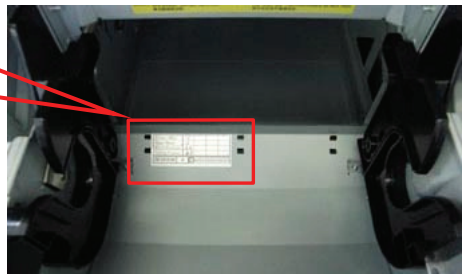
Before disassembly, turn the power OFF, and unplug the power cord and USB cable.
There are sharp edges in the printer when the cover is removed, and the user comes to touch this place. When disassembling and assembling, wear gloves, and use care not to get cut.

Return the head cam to its original position, and close the mecha cover R to finish the process.
Also, do not try to disassemble or adjust any parts not listed in this technical manual.
It could cause malfunction or lower print quality.

The contents of service parts vary depending on the product revision.
It is possible to distinguish with the label.



There is a Revision seal on the bottom inside the printer, with setting value when the printer left the factory.



Fasten Screw Torque List

Part List No.	Screw	Name	Torque	Type
6-22	Pan Head Tapping Screw	TSB1P 3*7	0.6±0.05N·m	
4-37	Pan Head Tapping Screw	STP 3*5 SemsA	0.8±0.05N·m	
2-34	Flat Head Tapping Screw	STK 3*6	0.8±0.05N·m	
3-43	Pan Head Tapping Screw	STP 3*10 SemsW	0.8±0.05N·m	
2-19	Pan Head Screw	SMP 3*10 SemsW	0.3±0.05N·m	
4-38	Pan Head Screw	SMP 3*6 SemsW	0.8±0.05N·m	
3-34	Pan Head Screw	SMP 4*30 SemsW	0.8±0.05N·m	
5-27	Pan Head Screw	SMP 2.6*6 SemsW	0.5±0.05N·m	
4-39	Pan Head Screw	SMP 2*6 SemsW	0.35±0.05N·m	
2-21,3-35,4-40	Pan Head Screw	SMP 4*5 SemsW	1.05±0.05N·m	
5-26,6-23	Pan Head Screw	SMP 3*5 SemsA	0.8±0.05N·m	
2-20	Pan Head Screw	SMP 3*24 SemsA	0.30±0.05N·m	
1-15	Binding Head Screw	SMB 3 * 5 Ni	0.65±0.05N·m	
1-16,2-24,3-37 4-49,5-31,6-28	Cup Head Tapping Screw	RSTN 3*8 Rtip 3BC	0.8±0.05N·m	

Maintenance parts

◆PC (OS: Windows 7,VISTA,XP), USB2.0, Need more than 512MB memory
◆Tool
Torque screw driver （0.25～1.2N・m）
＋screw driver No.0 , ＋ screw driver No.1 , ＋ screw driver No.2
－ small screw driver , － large screw driver
Screw driver for adjustment （Will use it for adjustment of variable resistance)
Nipper , Longnose pliers , Spring tool
Circuit tester （multimeter）
E-ring holder (E2,E3,E4,E5,E6)
Tweezers
Scale Lupe

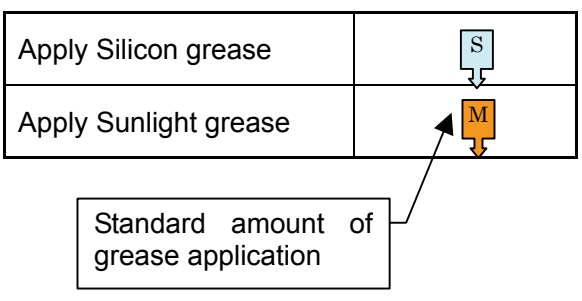
◆Consumable maintenance parts
Banding band
Ethyl alcohol for cleaning
Cleaning paper
Silicone grease (G501) *
Sunlight Grease*
Locking Agents*
Head Polishing Tape*
Double-stick tape (Equivalent of Nittoh No5000)

[Remarks]
Above all maintenance parts are prepared by customer side. If you want parts with "*" mark, you can purchase from us.

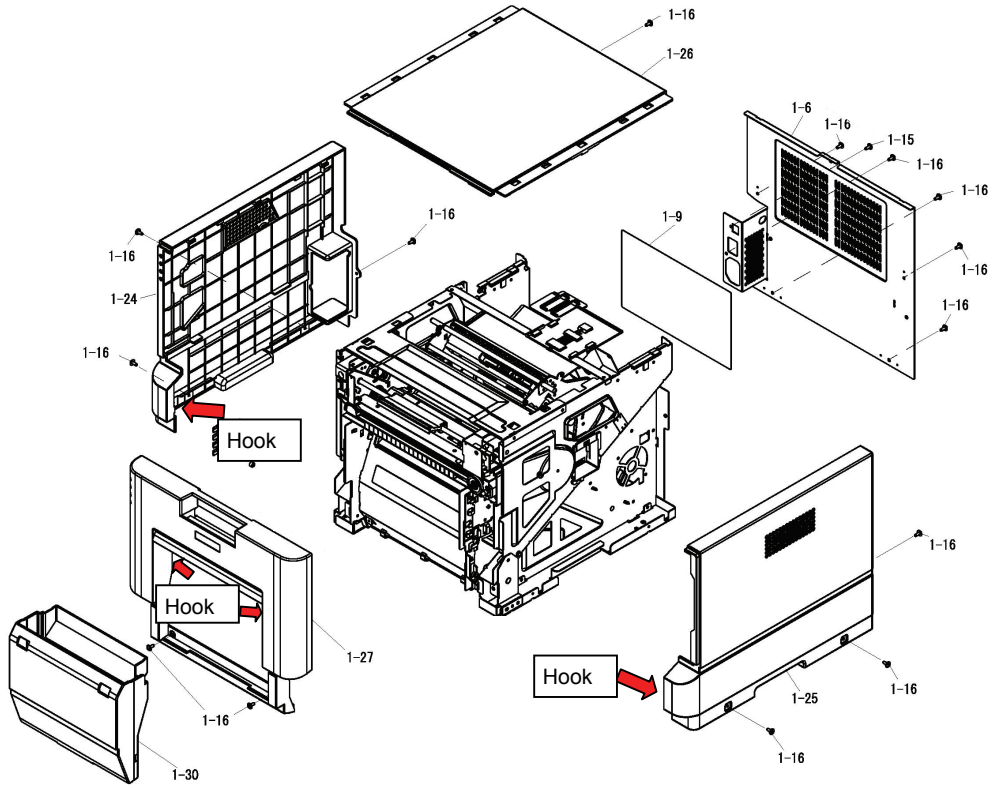
PARTS No	DESCRIPTION
JW-99055-00F	Silicone grease (80g) Shin-Etsu Chemical G501
JW-99115-00F	Sunlight Grease (50g) Shouwa Shell Sekiyu K.K.
JW99057-00F	Locking Agents ThreeBond 1401B (300g)
JW99058-00F	Head Polishing Tape Nihon Micro Coating GC#10000

Applying Grease

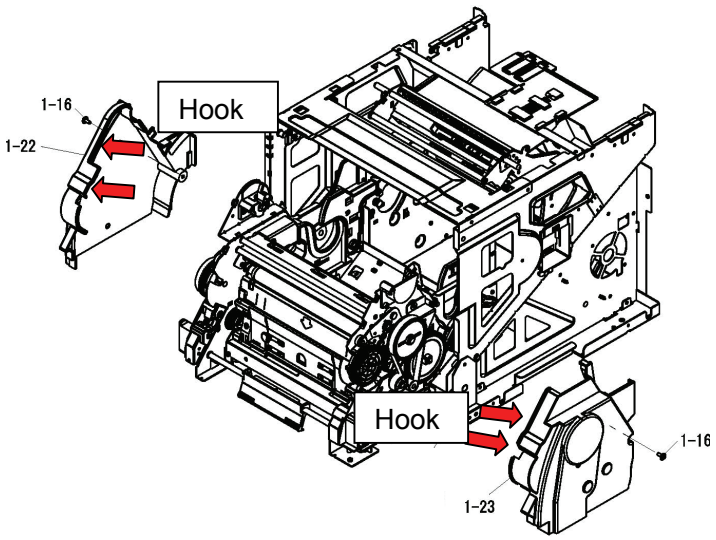
- Use silicon grease (white) and sunlight grease (amber). Use the correct grease depending on the area to which it is being applied. (Areas marked in the following diagram).
- Use a swab etc. to apply grease in an even amount (see the following diagram "Standard amount of grease application") around the entire circumference of the object.



1，Disassembly, Assembly (Outer cover)



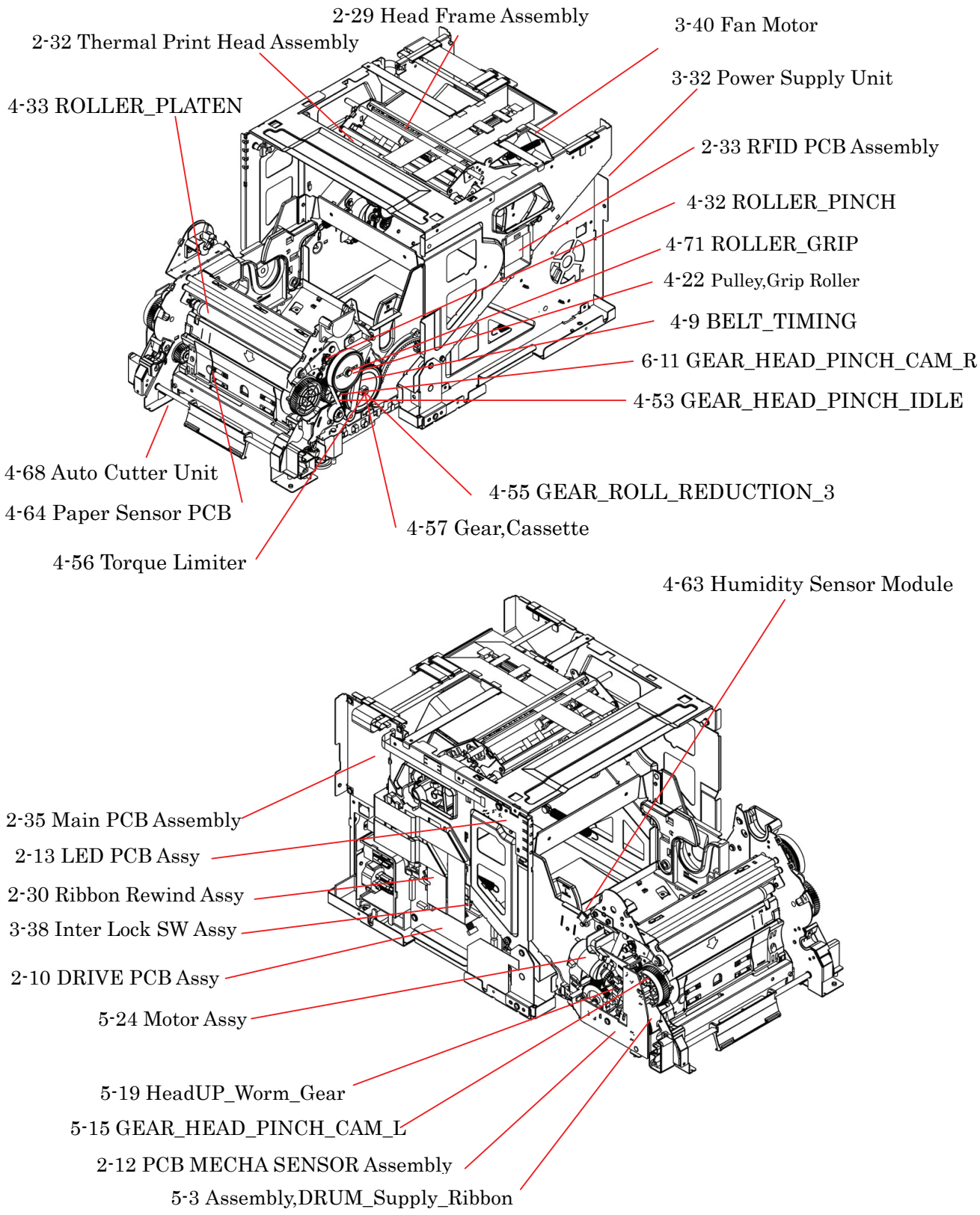
No.	Part Name	Caution regarding Disassembly and Assembly
1-30	SCRAP_BOX	
1-27	CASE_FRONT	2 screws. Upper hook.(Open the inside hook of 2 places, and lift it from the under.)
1-25	Case_side_R	3 screws（Remove the front hook of 1 place ,and lift it.）
1-24	Case_side_L	3 screws（Remove the front hook of 1 place ,and lift it.）
1-26	Case_upper	1 screw（Front hook）
1-6	PLATE_REAR	6 screws（The part USB use binding head screw. The screw torque should be 0.65±0.05N・m）
1-9	FILTER	Put the double-side tape on the PLATE_REAR.



No.	Part Name	Caution regarding Disassembly and Assembly
1-22	COVER_MECHA_L	1 screw（2 hooks）
1-23	COVER_MECHA_R	1 screw（2 hooks）

2，Disassembly・assembly（Printer mechanism）

Most parts can be exchanged by removing outer cover



Replacement Procedure 2-32 Thermal Print Head Assembly

① Remove 2-19 ,Remove 2-2

② Remove Connector 10 pin FFC 28pin(470mm), 22pin(505mm)

Note）Be sure to unlock the connector when inserting and removing the FFC.FFC is fixed with the double-side tape.

③Remove screws) Remove 2-32 Thermal Print Head Assembly

④Replace 2-32 Thermal Print Head Assembly

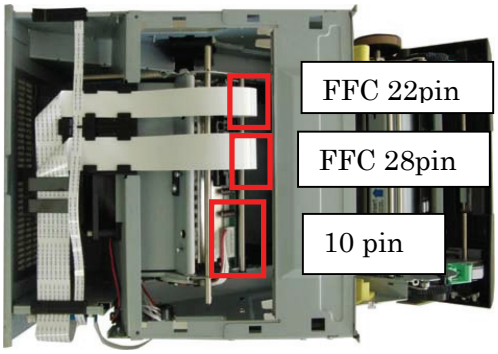
Note）Torque 0.30±0.05N・m

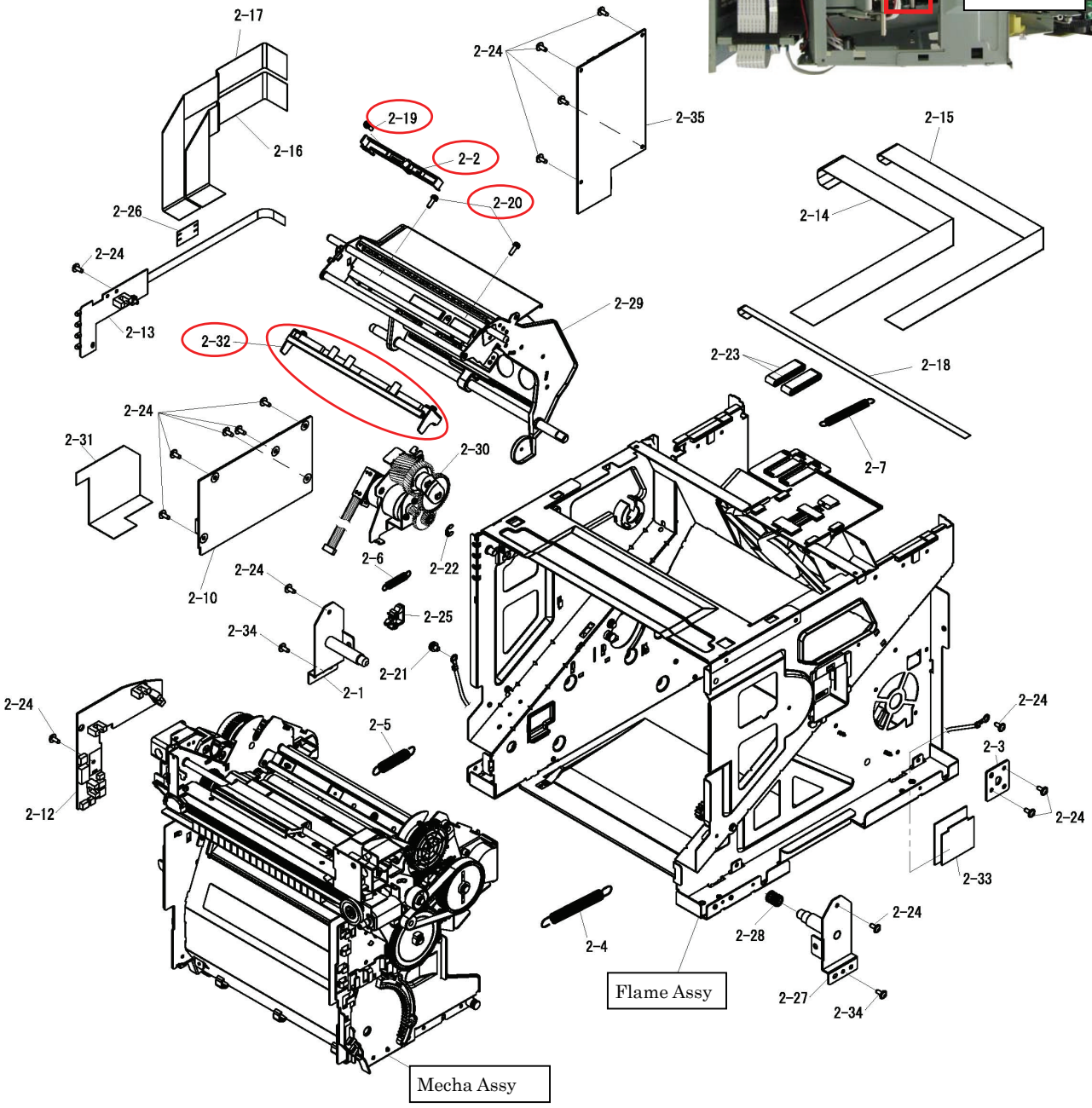
If the screw torque is incorrect, it could be detrimental to print quality.

When installing the Thermal Print Head Assembly, the positioning pins must be lined up. Be sure to align them and install it so there is no gap.

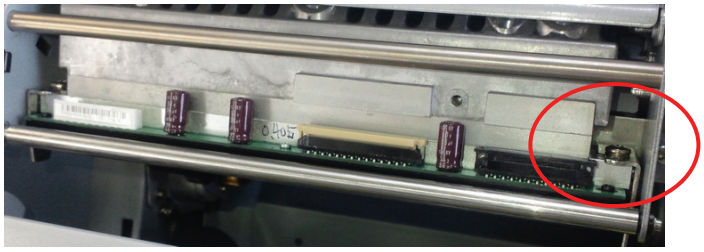
⑤Instet Connector 10 pin FFC 28pin(470mm), 22pin(505mm)

⑥Thermal Print Head Assembly, set the resistance value. (refer to Ch.4)

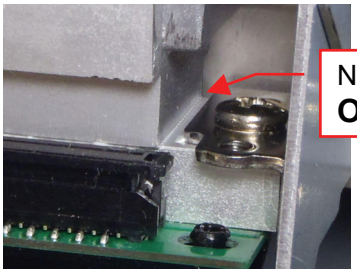




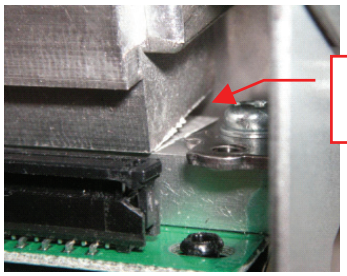
Notes when attaching the thermal print head



When attaching, make sure the print head is pressed firmly against the heatsink.

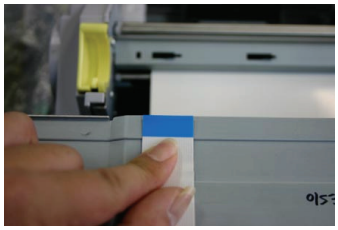


No gap
OK

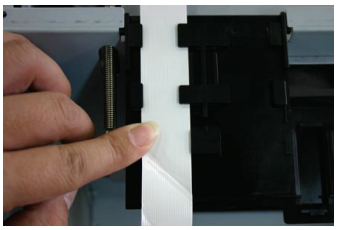


Gap
Not good

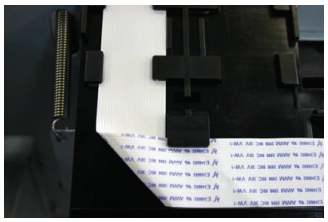
Head FFC installation



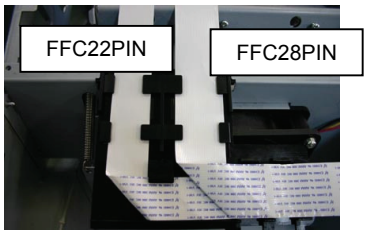
①Put the point of FFC.



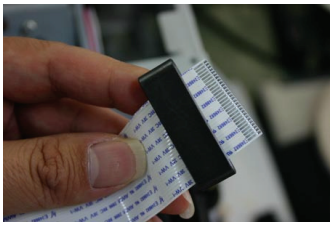
②Fix the other side with the double-side tape.



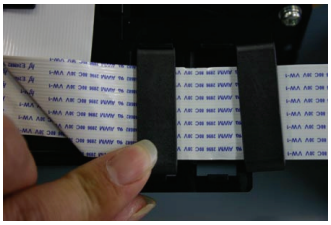
③Fold down the FFC along the edge .



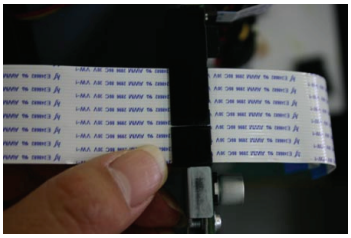
④FFC 28pin repeats same procedure as ①～③



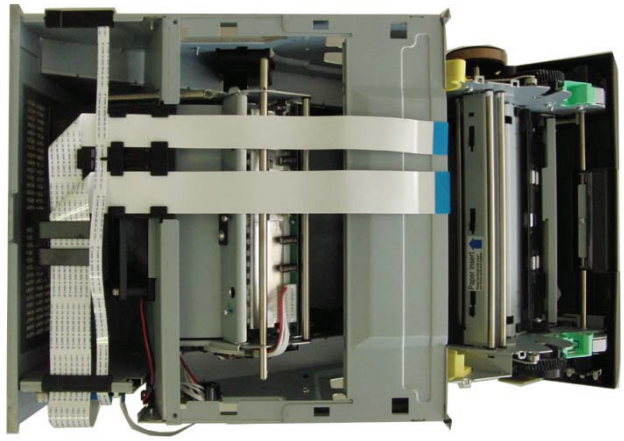
⑤Pass two harness piled up through the core.
（Core is two）



⑥Fix the core into the hook.

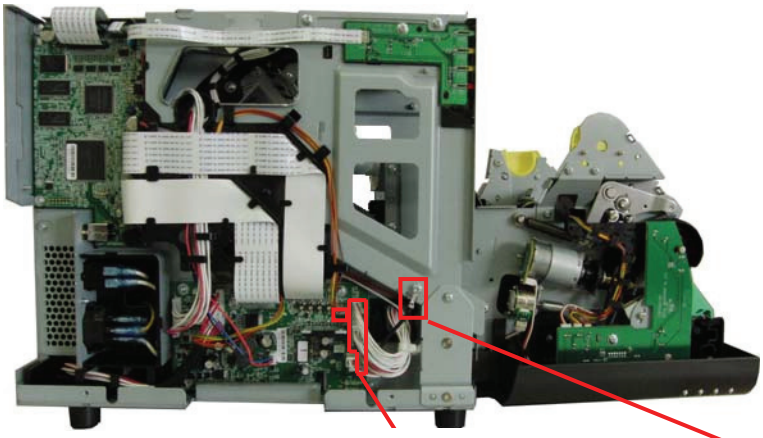


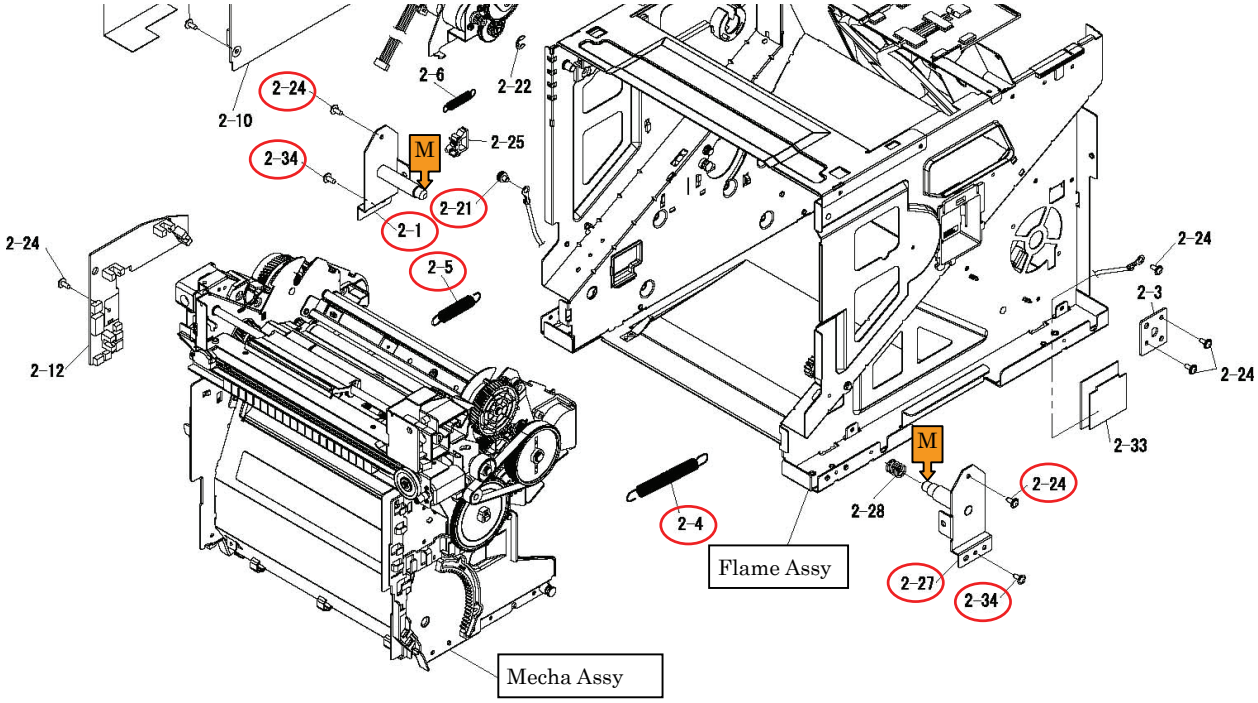
⑦Pass the harness through the guide.



Replacement Procedure Mecha Assy

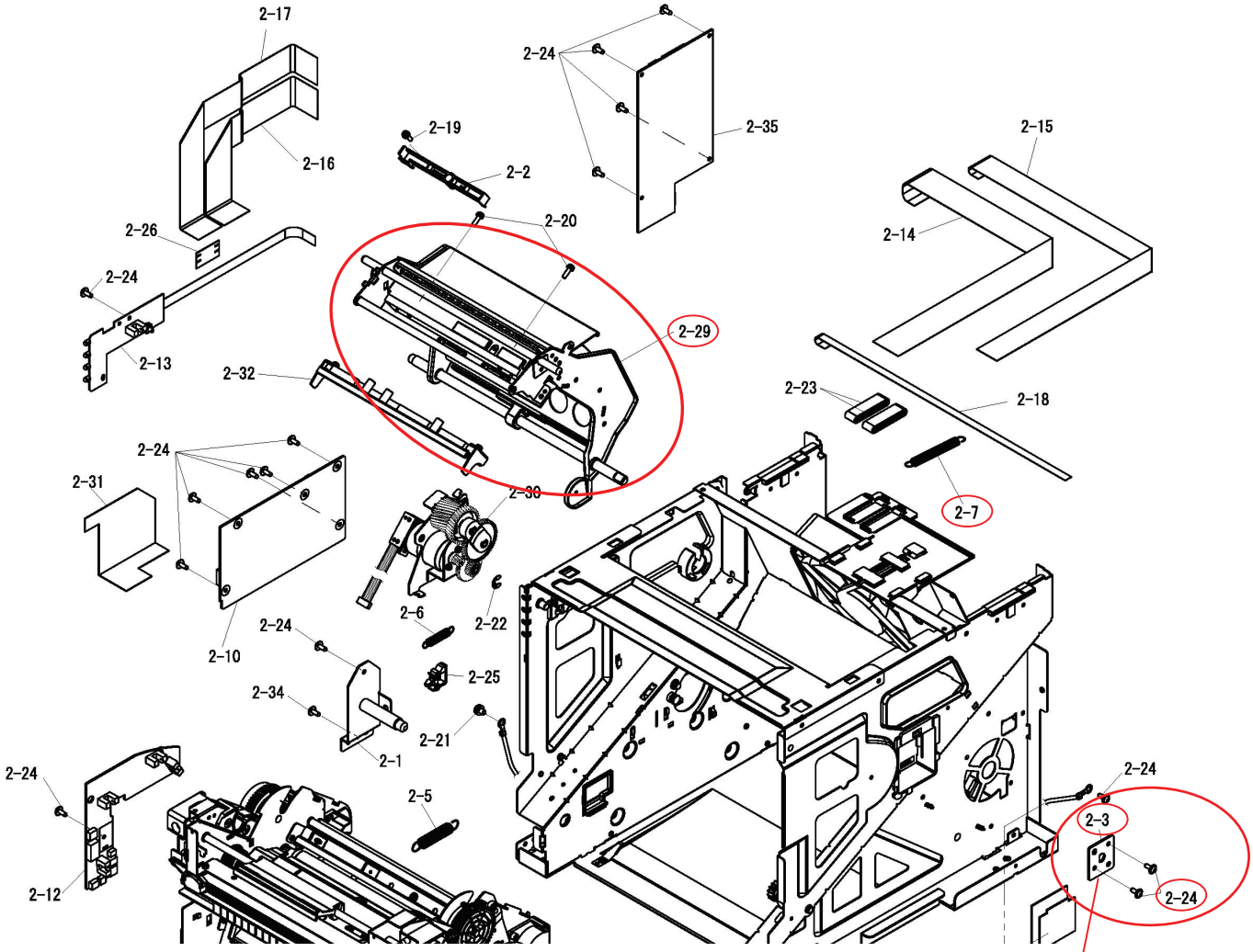
①Spring of 2 places 2-5(Small) and 2-4(Large).
Note）When the spring is removed, the Mecha Assy could drop. Use caution.
②3 connectors, Plug out Harness from 2-25 Locking Clamp
（refer to the figure below）
③2-1, 2-27 with right and left each screw (Lubricate the point of shaft when replacing .)
2-21 Ground 1 screw M4
④Remove the Mecha Assy
Note) When replacing, the various adjustments must be performed. (refer to Ch.4)

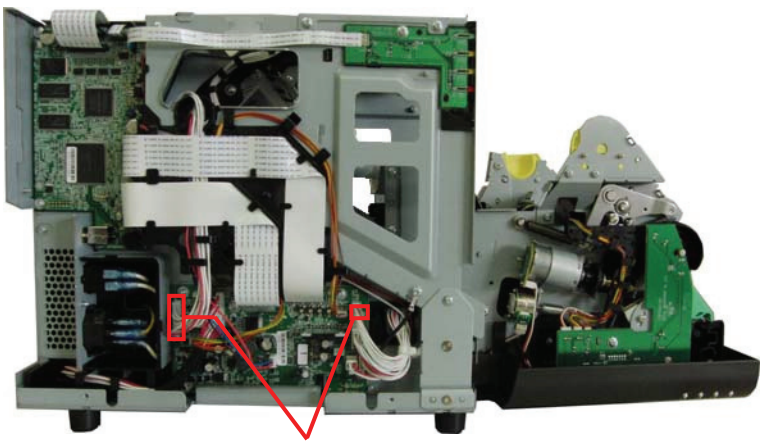




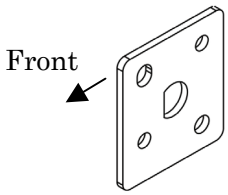
Replacement Procedure 2-29 Head Frame Assembly

①connectors（refer to the figure below）
②2-3 PLATE_HEAD_Holder 2 screws
③2-7 Spring
Note) When the spring is removed, the Mecha Assy could drop. Use caution.
④Slide the Head Assy right and lift it up.
Note） Note) Be careful of the Ribbon Rewind Assy gear when sliding it.
Note)) When replacing, the various adjustments must be performed (refer to Ch.4)





Head Assy 10pin 4pin



The attachment direction

Replacement Procedure 2-30 Ribbon Winding Assy

①Connector of one place (refer to Wiring Diagram 2)
②2-6 Springs
③E Ring 1 place
④2-3 PLATE_HEAD_Holder 2 screws
⑤Slide the Head Assy to the right.
⑥Remove the 2-30 Ribbon Winding Assy while rotating.

Note）Rotating metal parts that are in contact should be lubricated.

Replacement Procedure 2-35 Main PCB Assembly

Each FFC（refer to Wiring Diagram 2）4 screws

Note）When replacing, the various adjustments must be performed (refer to Ch.4)

Replacement Procedure 2-10 DRIVE PCB Assy

Each connector, FFC　5 screws

Note) When replacing, the various adjustments must be performed (refer to Ch.4)

Replacement Procedure 2-13 LED PCB Assy

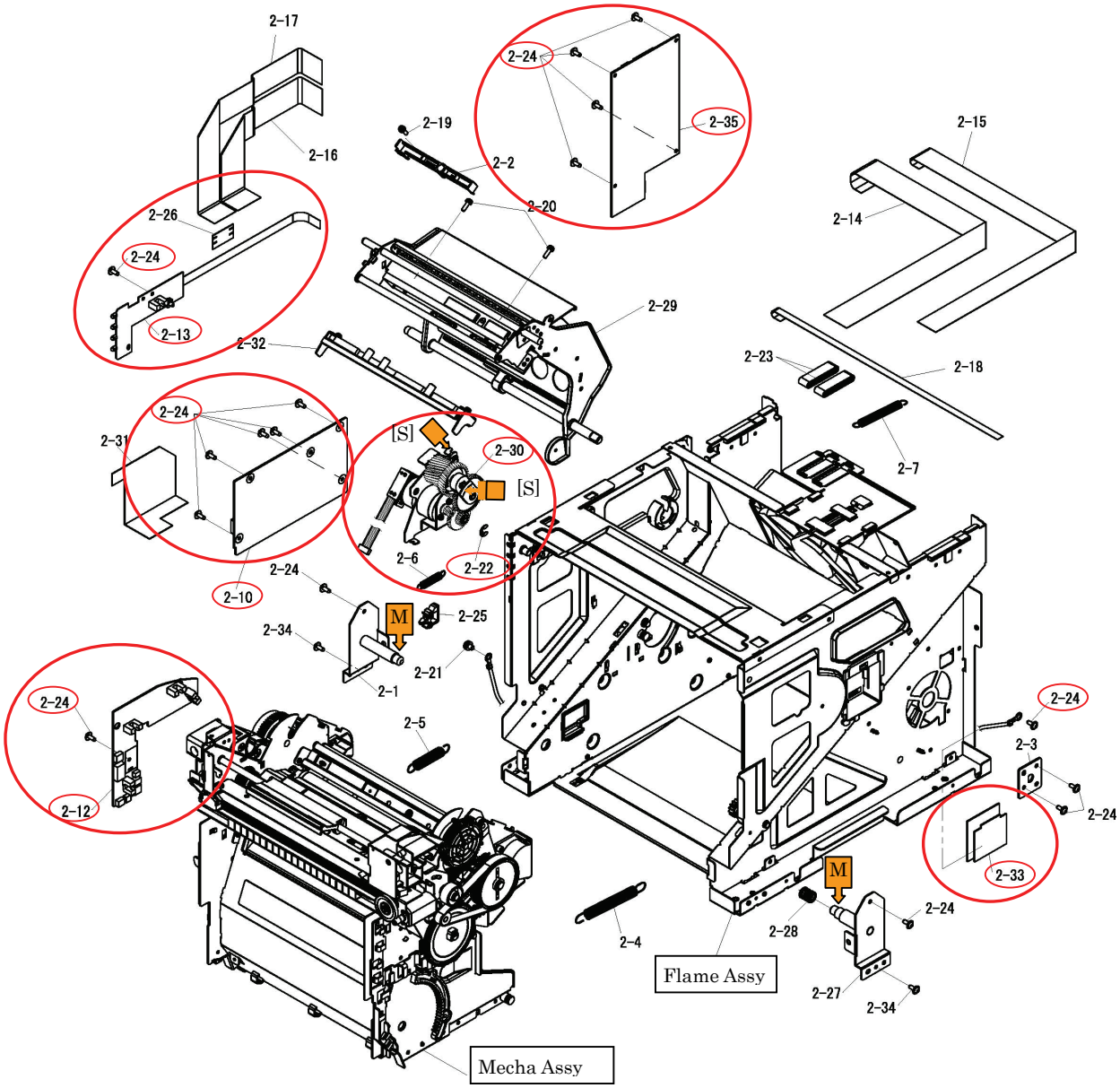
FFC(Main PCB Assembly) of 1 place（refer to Wiring Diagram 2）1 screw.

Replacement Procedure 2-12PCB MECHA SENSOR Assembly

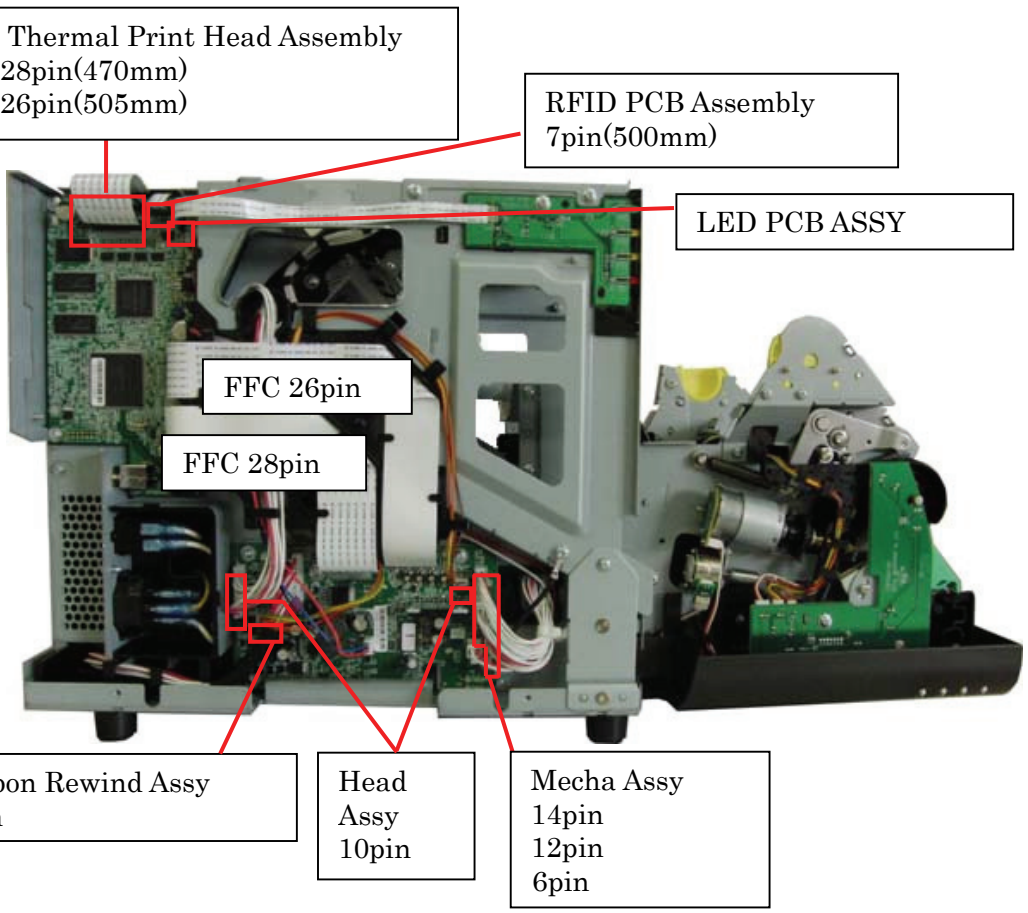
Each connector（refer to Wiring Diagram 6）1 screw.

Replacement Procedure 2-33 RFID PCB Assembly

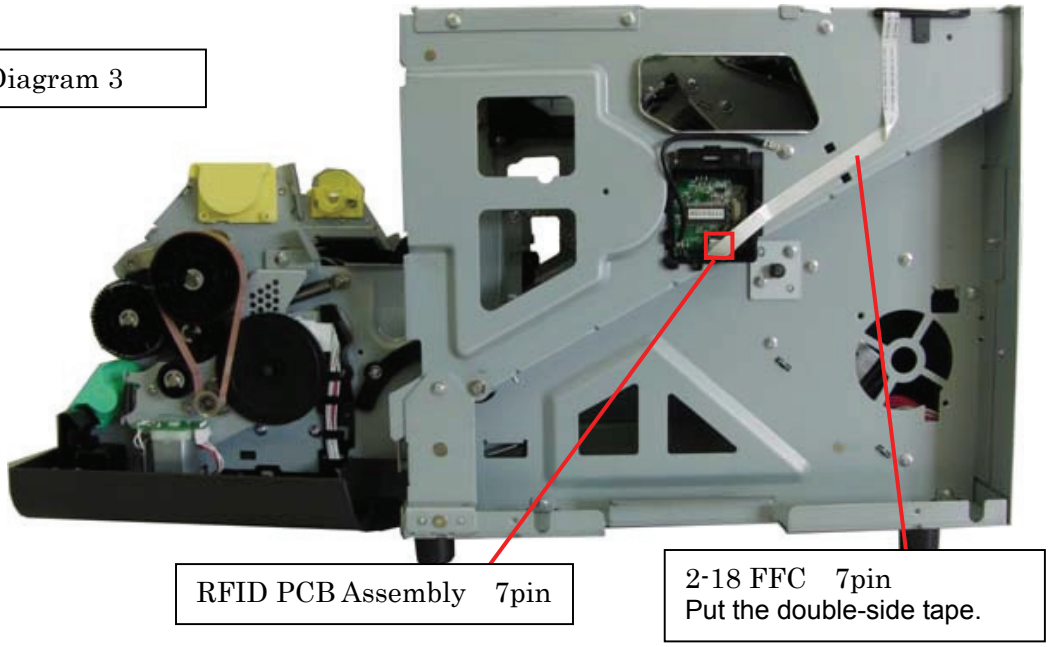
FFC of 1 place （refer to Wiring Diagram 3）Detach it with the hook.（refer to Detail drawing 1）



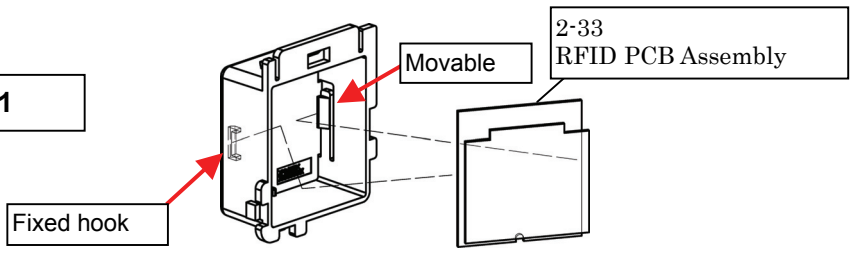
Wiring Diagram 2



Wiring Diagram 3



Detailed Diagram 1



3，Disassembly・Assembly（Frame Assy）

Caution

When exchange Power Supply Unit
Even after the power is turned OFF, there are high voltage parts inside. Do not disassemble for 10 minutes after the power is turned OFF.

Replacement Procedure DAMPER

①3-15 Gear_open

Note）The Gear_open is not fixed. Please note the drop and the loss.

②3-1 2 screws

③3-6 Pull the 3-5 Straight Pin out of the 3-6 Shaft

Note) Lubricate the metal contact parts of 3-6 Shaft

Replacement Procedure 3-38 Inter Lock SW Assy

1 connector（refer to the figure below）

Note）Inter Lock Sw if fixed with the hook.

When removing, be careful not to damage the hook.

Replacement Procedure 3-40 Fan Motor

1 connector（refer to the figure below）

2 screws (Screw torque 0.74±0.05N・m)

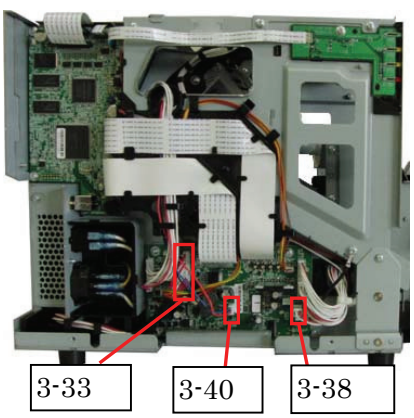
Note）Take note of the fan direction.　Affix it so it blows into the printer.

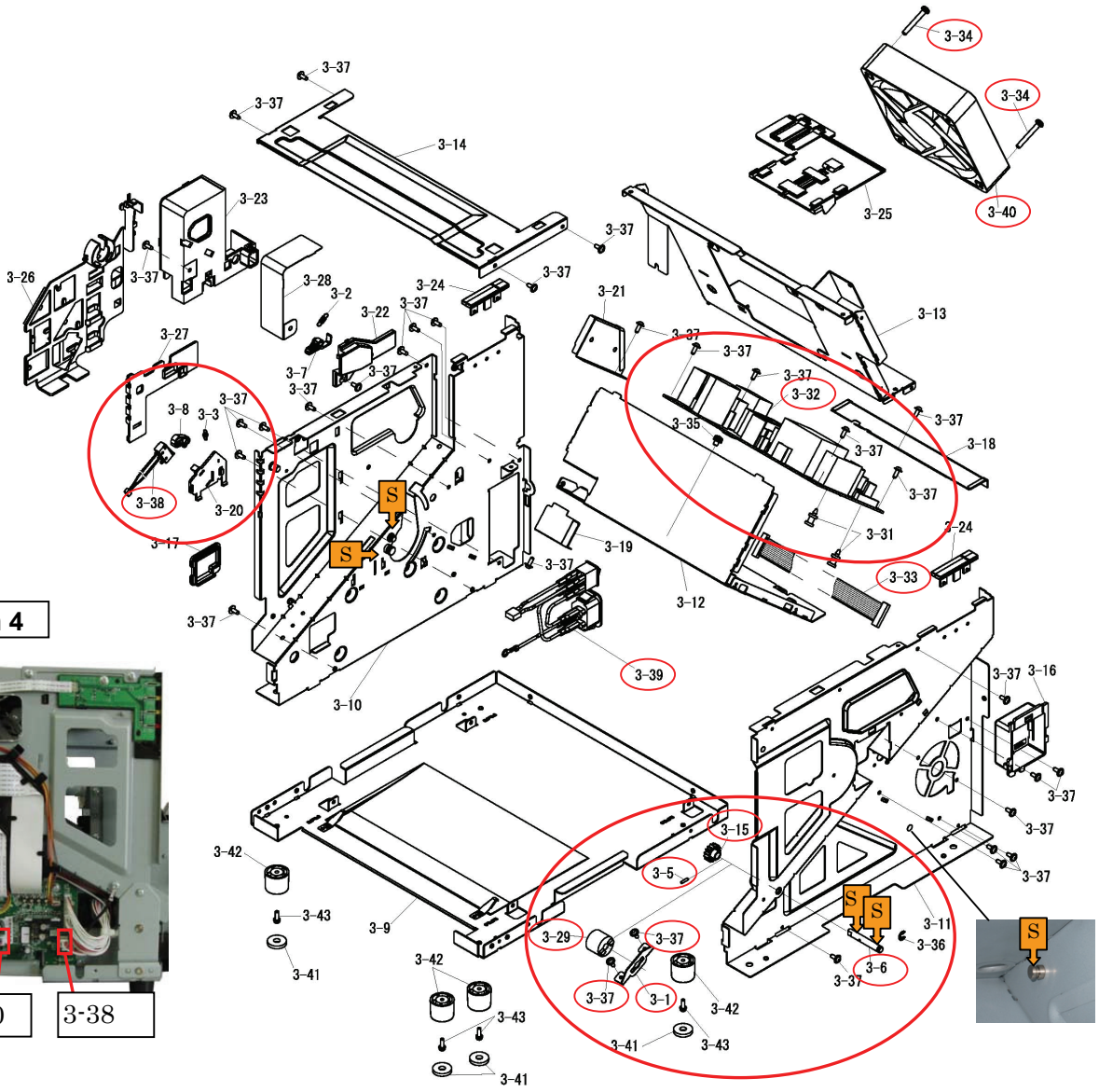
Replacement Procedure 3-32 Power Supply Unit

2 connectors　3-39, 3-334 screws　3-31 Rocking Card Spacer 2 places.

Note) When replacing, the various adjustments must be performed. (refer to Ch.4)

Wiring Diagram 4





4，Disassembly，Assembly（Mechanical Assy）

Replacement Procedure 4-68 Auto Cutter Unit

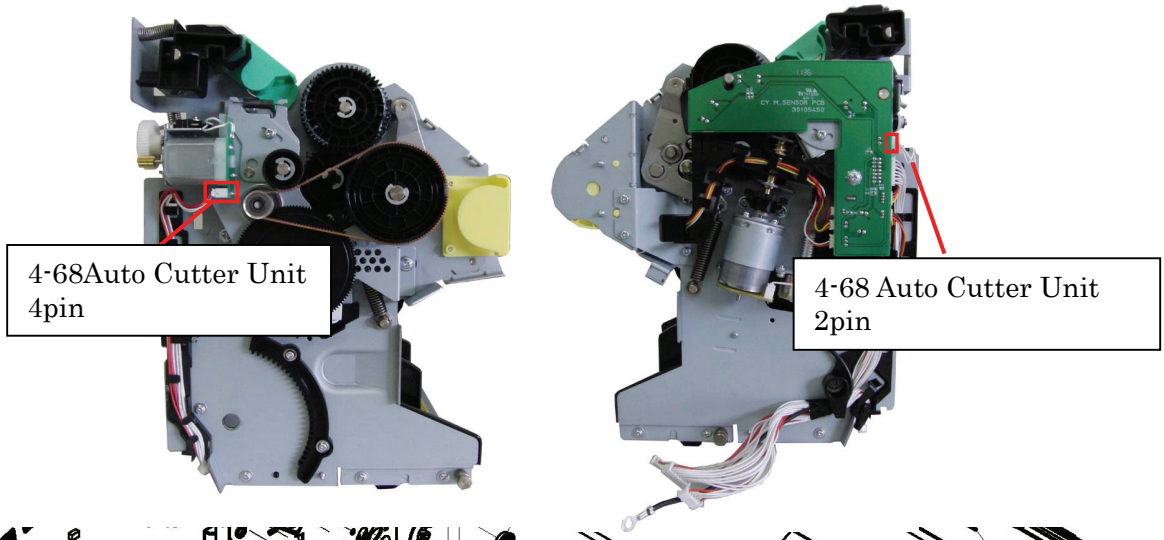
①4-60 Wiring Harness 4pin（refer to the figure below）
②2-12 2pin（the figure below）
③Remove from the printer in the screw 2 locations.
④Remove the 4-681 in the screw 2 locations.
Note) You need to adjust the print position and cut position.
(refer to Ch.4)

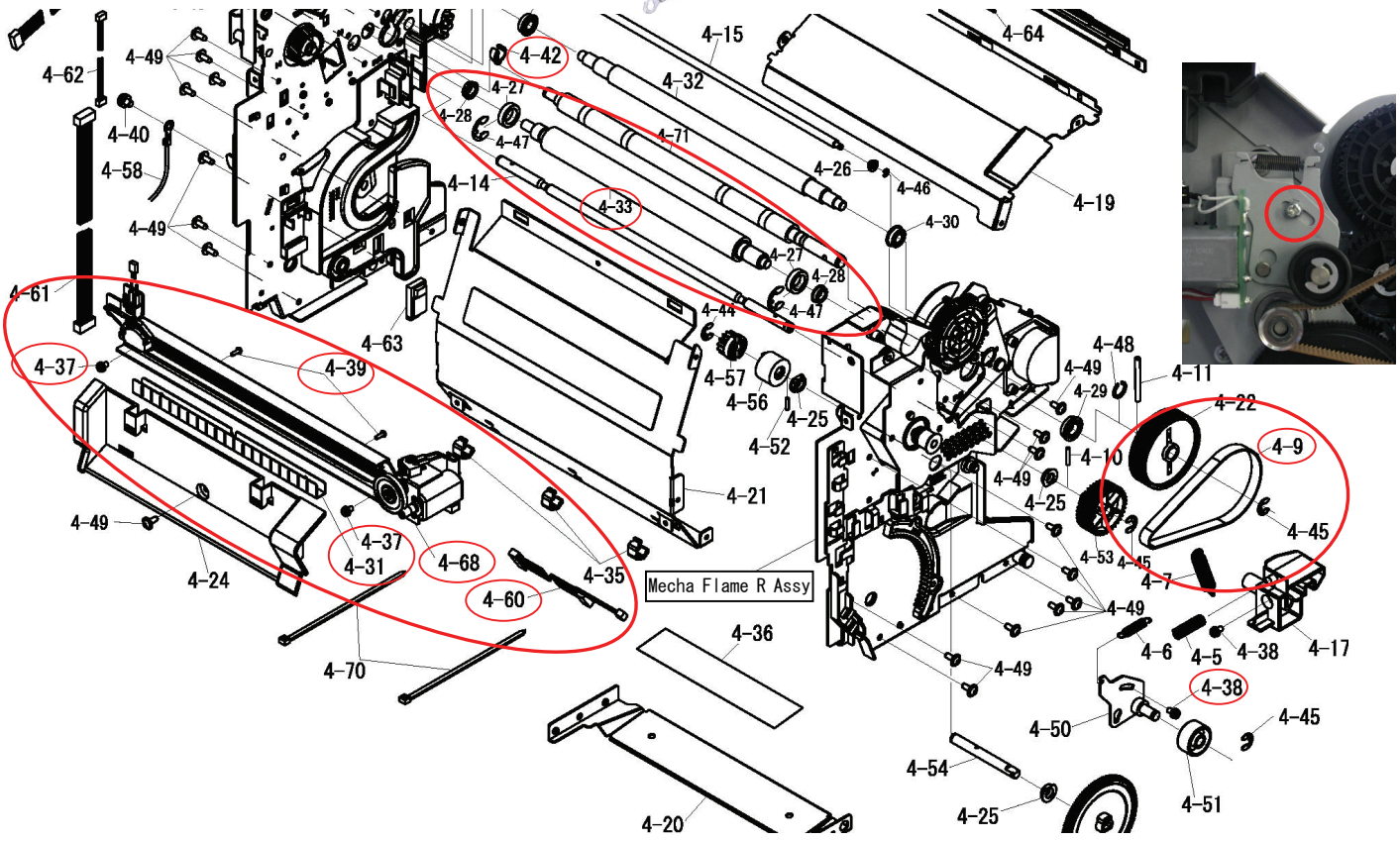
Replacement Procedure 4-9 BELT_TIMING

Loosen the 4-50 PLATE_TENSIONER screw.
Note) The belt tension is set correctly with 4-6 spring_tension.
Be sure not to move it when loosening screws.

Replacement Procedure 4-33 ROLLER_PLATEN

①4-42 Spacer_Platen_Roller
②2. Slide the 4-33 ROLLER_PLATEN and remove.
Note) Be careful not to drop or lose the 4-28 Bearing (d6-D10 F).
③4-27 Bearing(d10-D15) and 4-47 E Ring





Replacement Procedure 4-71 ROLLER_GRIP

①Disengage the outer side of the 4-7 SPRING_PINCH in 2 places, left and right

Note) This is a powerful spring. Use caution to avoid injury.

②Remove the E Ring of 2 places.(4-46, 6-26)Next, remove the 4-26 Bush.3B and the 6-1 Plate_Pinch_Up_R.

③Remove the 4-44 E Ring.

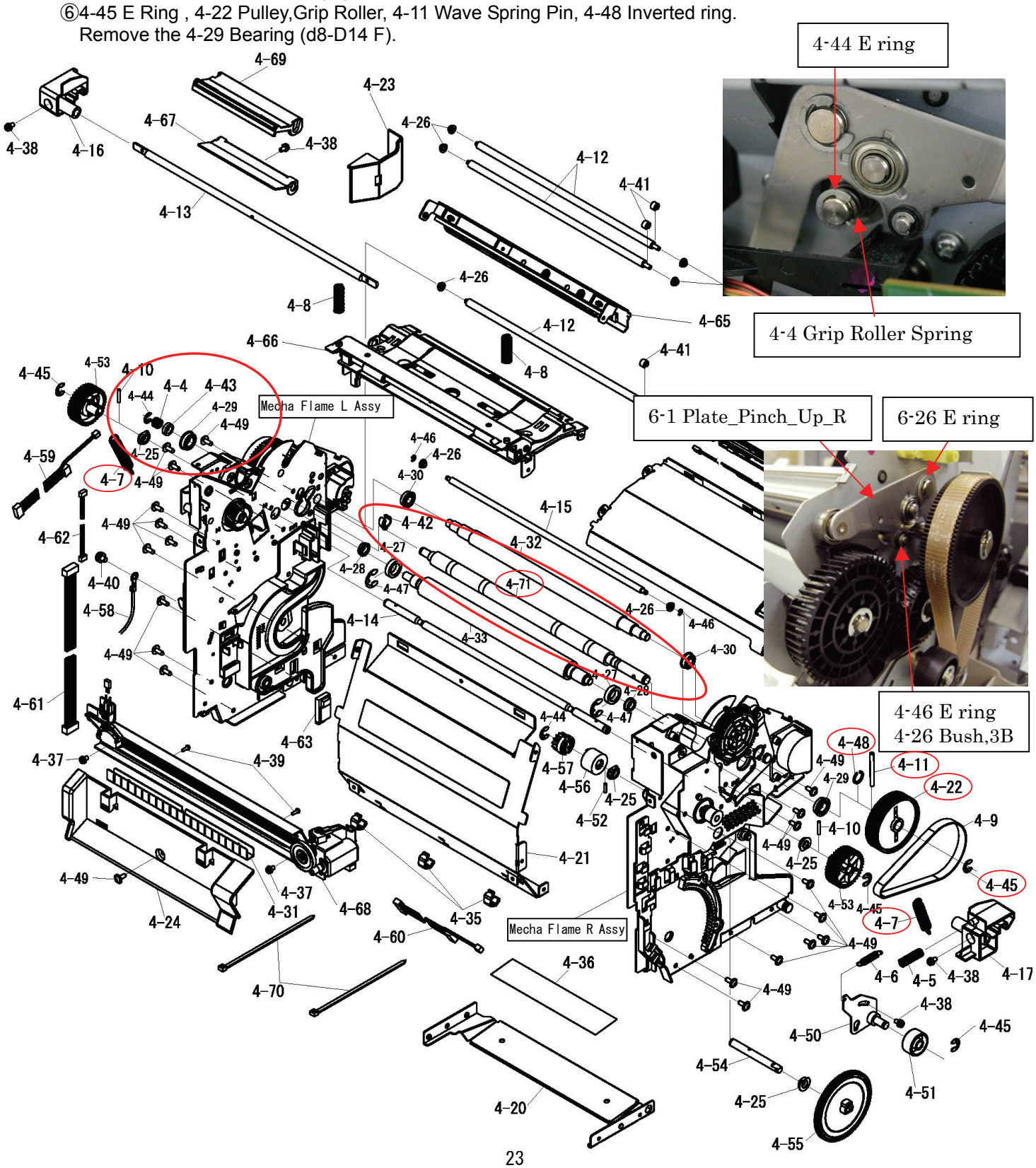
Note） When the 4-4 Grip Roller Spring broke out, so beware of injury or damage.

④4-4 Grip Roller Spring, 4-43 Spacer_Grip_Spring
Remove the 4-29 Bearing(d8-D14 F).

⑤Pull the 4-71 ROLLER_GRIP.

Note) There are numerous bumps on the roller to help feed the paper. If these bumps come in contact with metal, etc., the paper feed can be affected. Please use care.

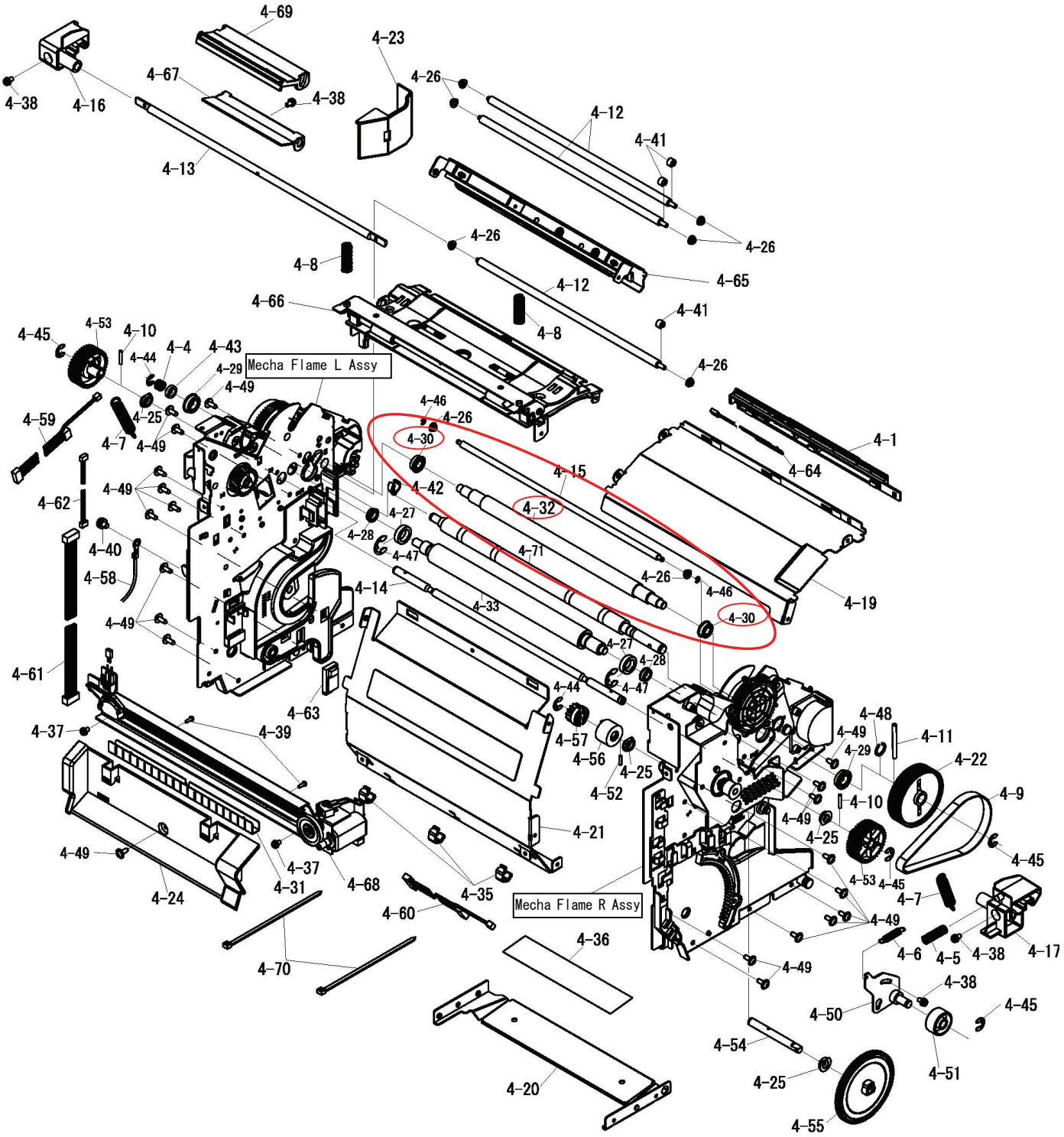
⑥4-45 E Ring , 4-22 Pulley,Grip Roller, 4-11 Wave Spring Pin, 4-48 Inverted ring.
Remove the 4-29 Bearing (d8-D14 F).



Replacement Procedure 4-32 ROLLER_PINCH

①Remove the 4-71 ROLLER_GRIP.
②Remove the 4-46 E Ring and the 4-26 Bush.
③Remove the 6-1 Plate_Pinch_Up_R with E Ring.
④Remove the 4-32 ROLLER_PINCH and 4-30 Bearing (d6-D12 F).

Note) By removing 5-4 and 6-1, the ROLLER could drop, so beware of injury or damage.



Replacement Procedure 4-53 GEAR_HEAD_PINCH_IDLE

R Side

①Remove the 4-9 BELT_TIMING, the 4-51 ROLLER_TENTIONER, and the 4-22 Pulley, Grip Roller.

②Remove the 4-45 E Ring

L Side

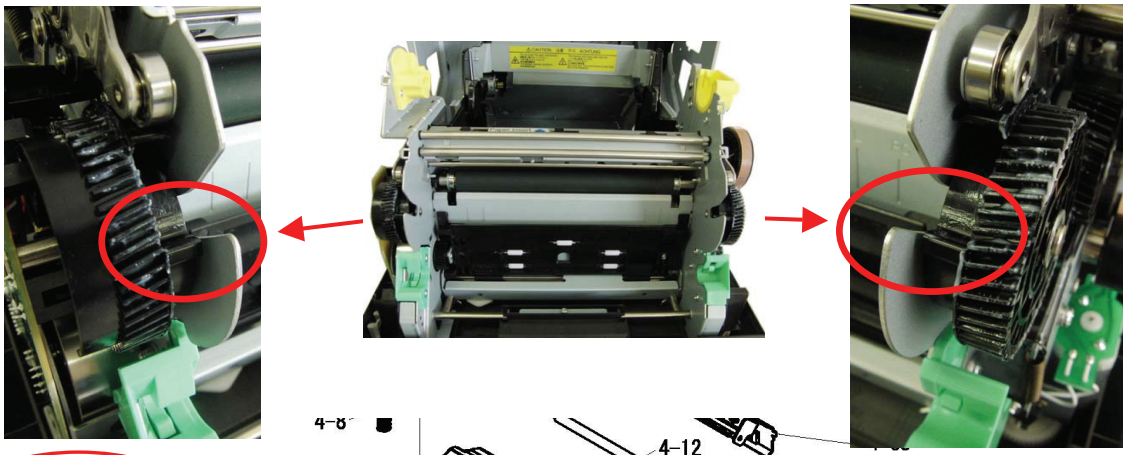
①Remove the 2-12 PCB MECHA SENSOR Assembly.

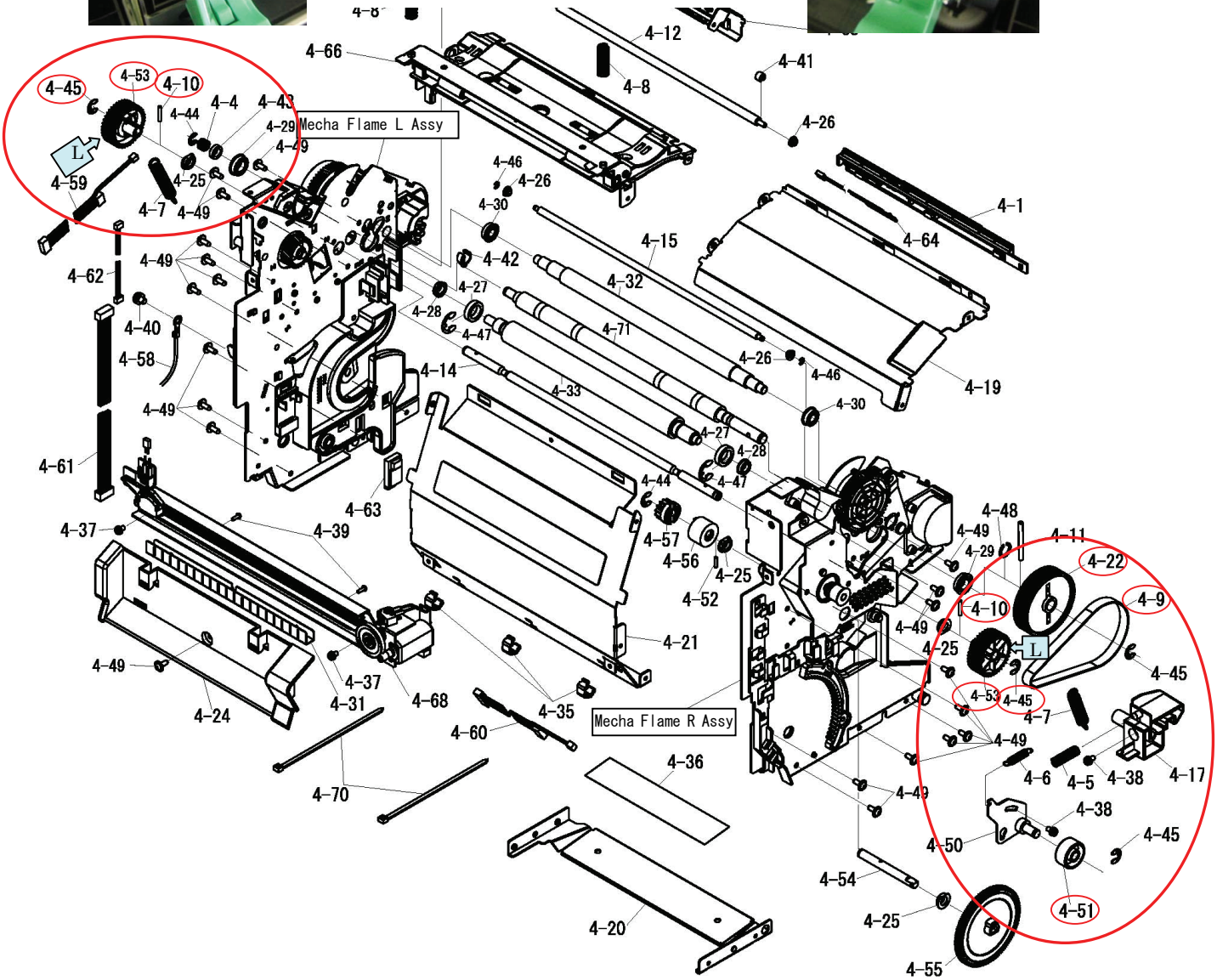
②Remove the 5-7 Guide_Cable.

③Remove the 4-45 E Ring.

Note） By removing 4-53 GEAR_HEAD_PINCH_IDLE, 4-10 Straight Pin can drop. Be sure not to lose it.

Note） During Assembly of the gear. 5-15 GEAR_HEAD_PINCH_CAM_L and 6-11 parts CAM configuration must be matched on left and right sides. If they are not matched, it won't operate properly.





Replacement Procedure 4-55 GEAR_ROLL_REDUCTION_3

4-55 GEAR_ROLL_REDUCTION_3 is assembled with the hook.

Note) Putting too much force on the hook can damage it.

Replacement Procedure 4-57 Gear,Cassette

4-45 E Ring

Replacement Procedure 4-56 Torque Limiter

It can be removed by removing 4-57 Gear, Cassette

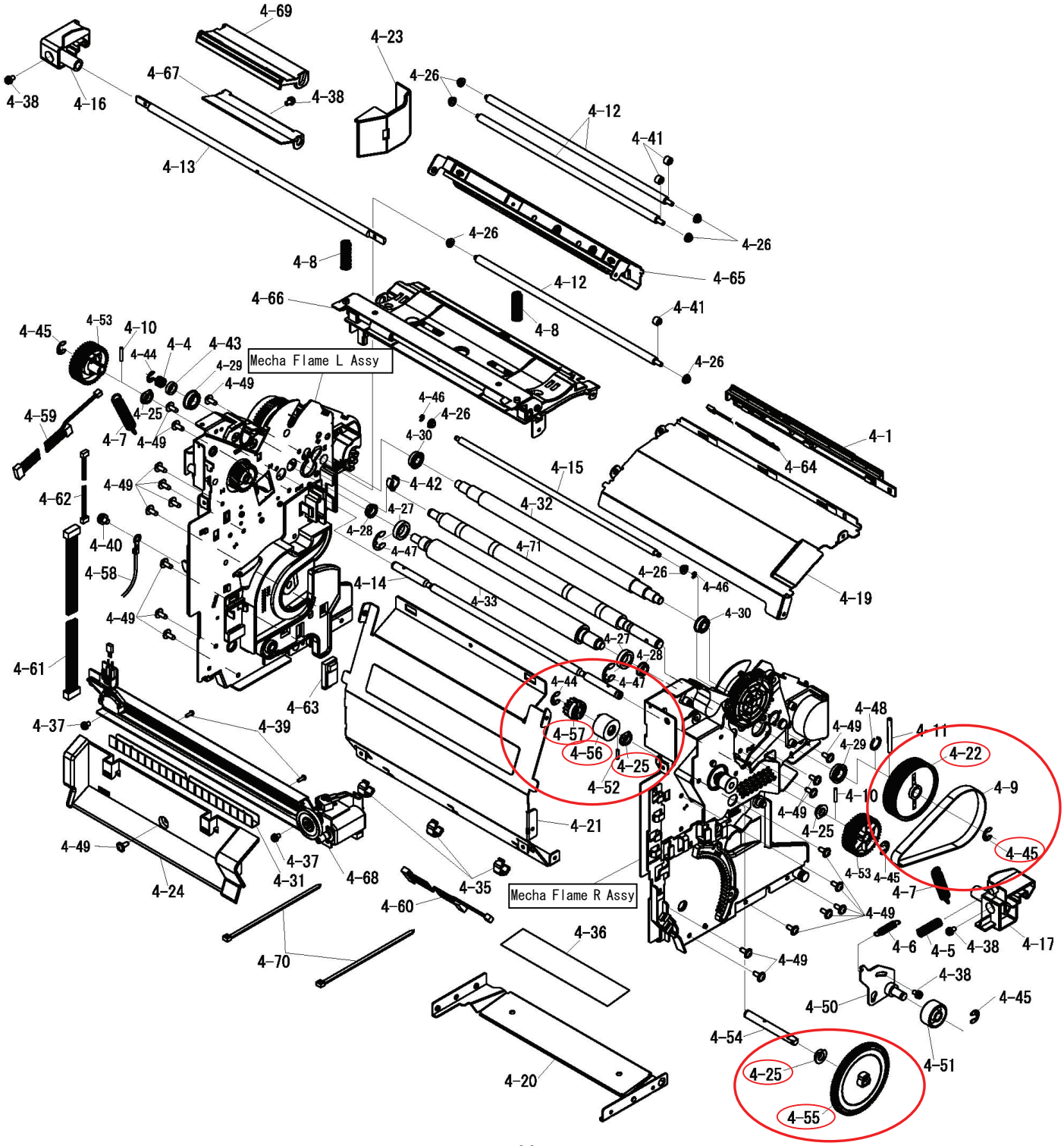
Note) 4-52 Straight Pin can drop. Be sure not to lose it.

Replacement Procedure 4-25 Metal Bearing（d6-D10）

It can be removed by removing 4-55 GEAR_ROLL_REDUCTION_3.

Replacement Procedure 4-22 Pulley,Grip Roller

It can be removed by removing 4-9 BELT_TIMING, 4-45 E Ring.



Replacement Procedure 4-63 Humidity Sensor Module

Remove the connector. 5-22 HOLDER_PAPER_L is assembled with the hook.
It can be removed by removing hook.

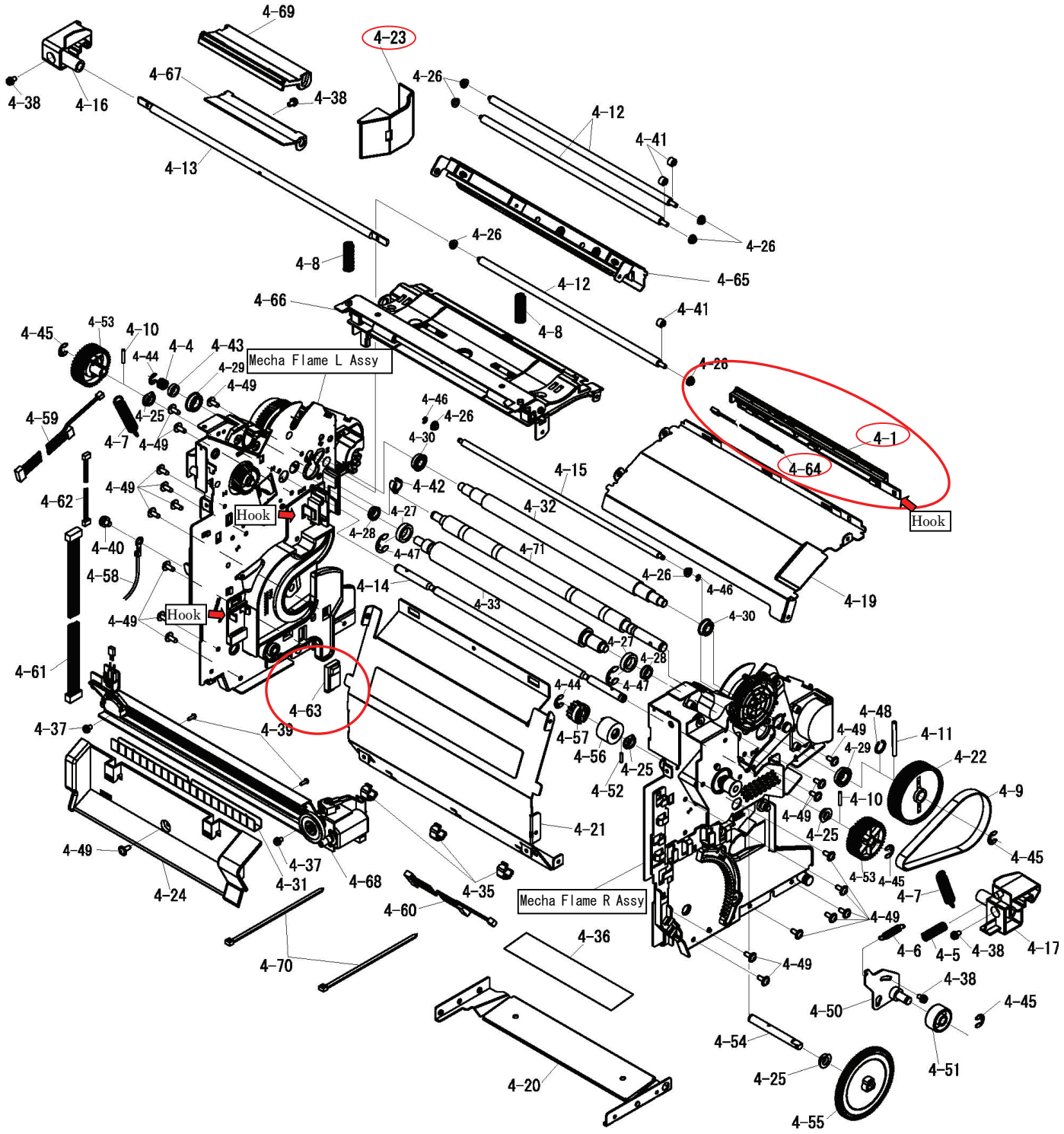
Note) Putting too much force on the hook can damage it.

Replacement Procedure 4-64 Paper Sensor PCB

①Connector 1 place (refer to Wiring Diagram 6)
②4-23 cover_cable is assembled with the hook.

Note) Putting too much force on the hook can damage it.

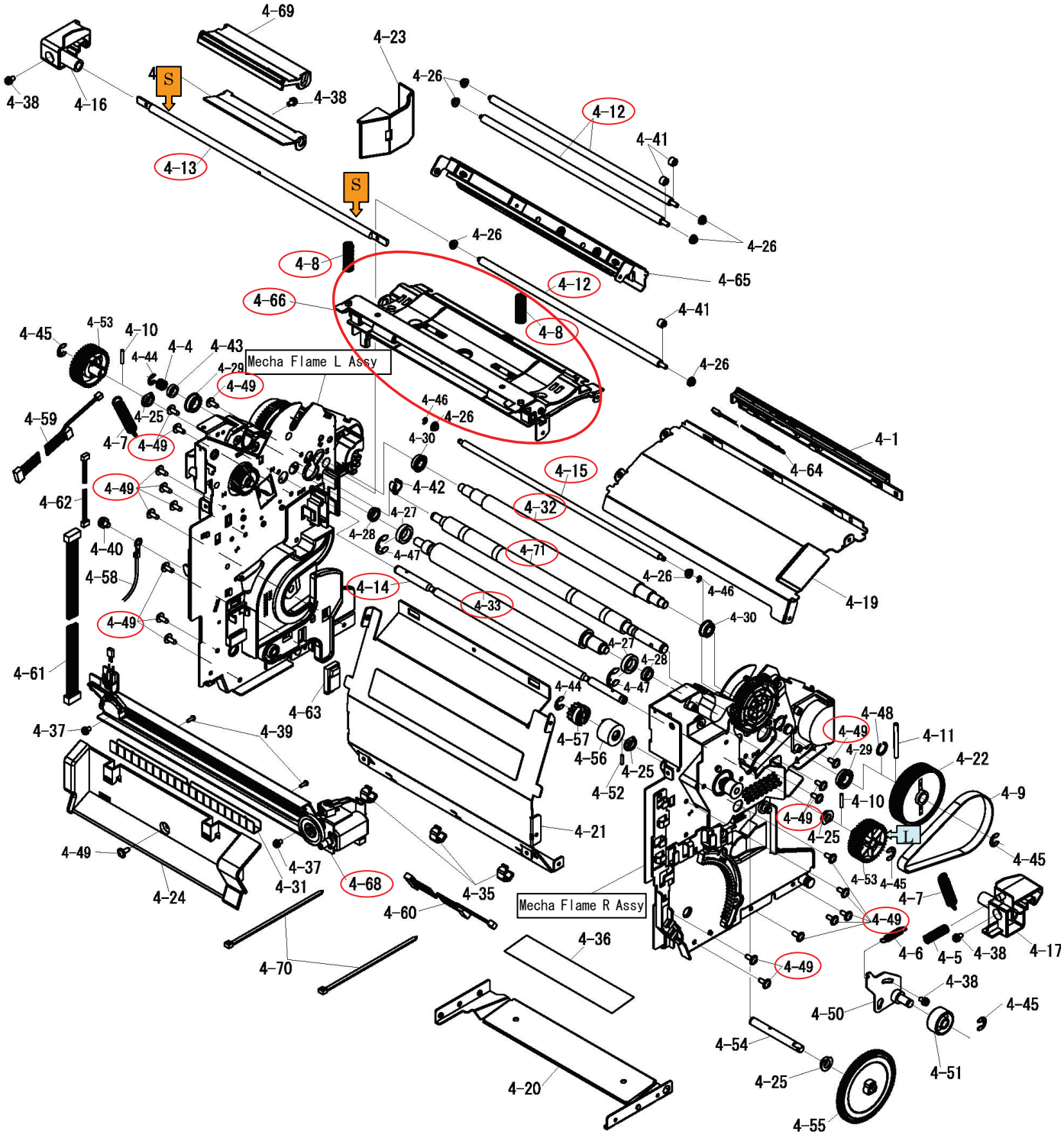
③Slide the 4-1 Holder_Paper_End_Under and remove it.
④4-64 Paper Sensor PCB is assembled with the hook.



Replacement Procedure 4-66Paper Guide Assy（It is necessary to resolve mecha Assy to remove these parts）

4-68　Auto Cutter Unit
2-12 PCB MECHA SENSOR Assembly
4-8 spring_paper_holder_LC
Each roller or shaft at 4-33, 4-71, 4-15, 4-32, 4-14, 4-12, 4-13
4-53 GEAR_HEAD_PINCH_IDLE
4-5 Spring_Mecha_Open
4-23 cover_cable
Please remove the parts respectively.
Mecha Frame R Assy, Mecha Frame L Assy
The parts can be removed by removing the screws in
10 places.

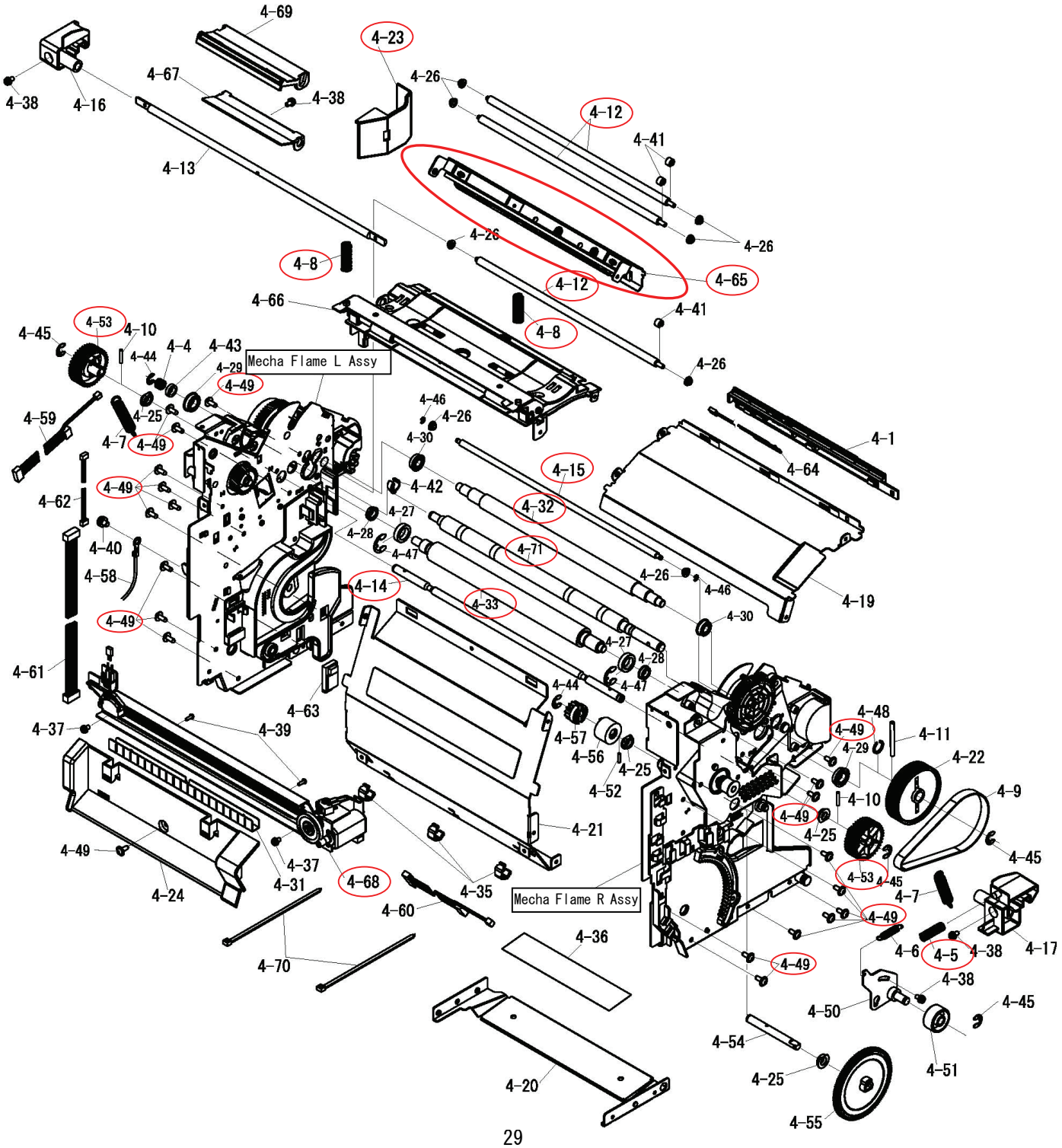
Note) Check the warnings for all parts. Sensor voltage, cut and print position adjustments must be performed.　(refer to Ch.4)



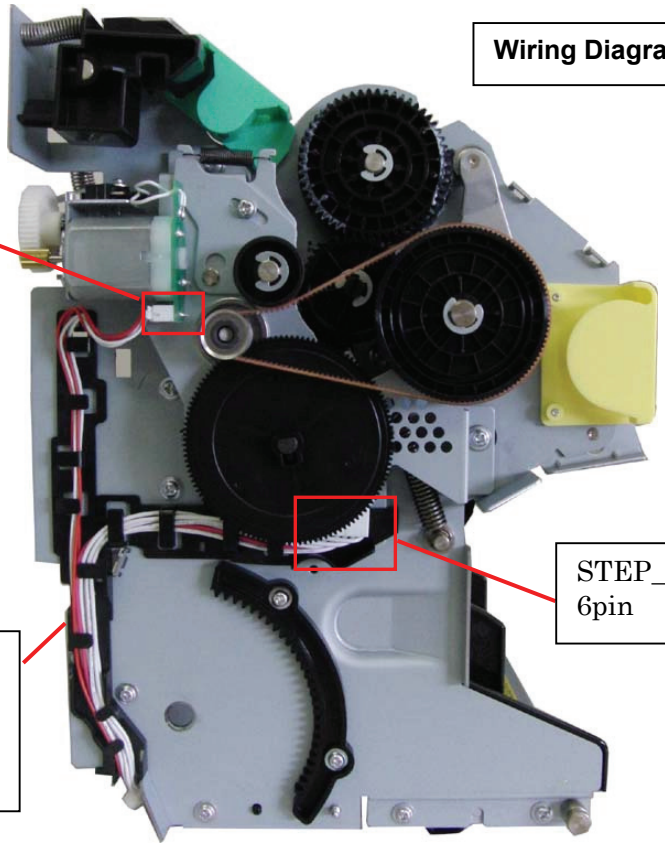
Replacement Procedure 4-65 Sensor Plate Assy（It is necessary to resolve mecha Assy to remove these parts）

4-68　Auto Cutter Unit
2-12 PCB MECHA SENSOR Assembly
4-8 spring_paper_holder_LC
Each roller or shaft at 4-33, 4-71, 4-15, 4-32, 4-14, 4-12, 4-13
4-53 GEAR_HEAD_PINCH_IDLE
4-5 Spring_Mecha_Open
4-23 cover_cable
Please remove the parts respectively.
Mecha Frame R Assy, Mecha Frame L Assy
The parts can be removed by removing the screws in
10 places.

Note) Check the warnings for all parts. Sensor voltage, cut and print position adjustments must be performed. (refer to Ch.4)



Wiring Diagram 5

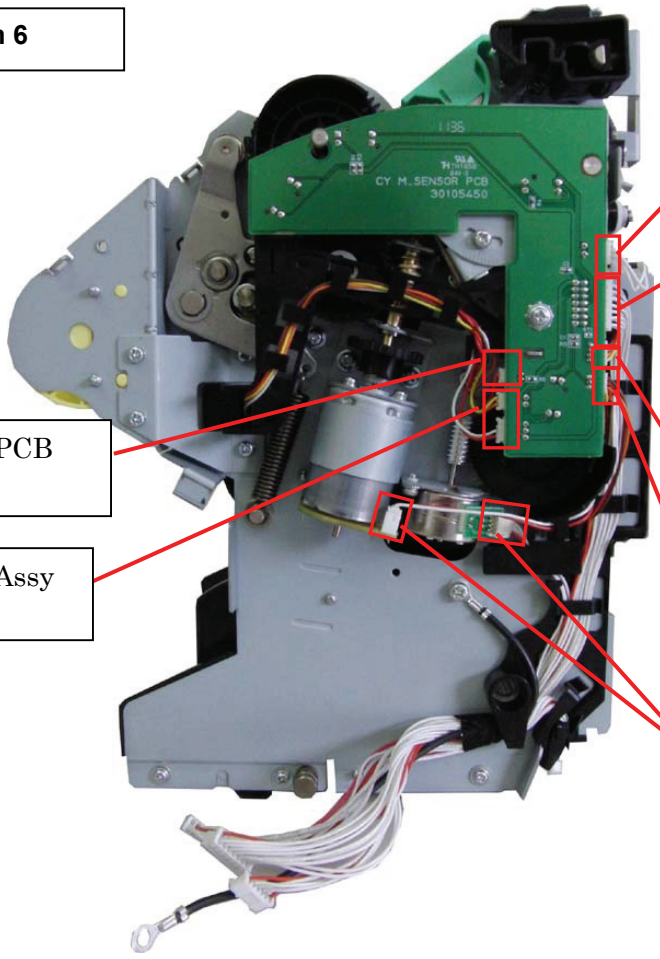


4-68 Auto Cutter Unit
4pin

STEP_MOTOR_MAIN_LC
6pin

4-60 Wiring Harness
4pin → 4-68
6pin → 6-21
12pin→ 2-10

Wiring Diagram 6



4-68 Auto Cutter Unit
2pin

4-61 Wiring Harness
14pin → 2-10

4-64 Paper Sensor PCB
2pin

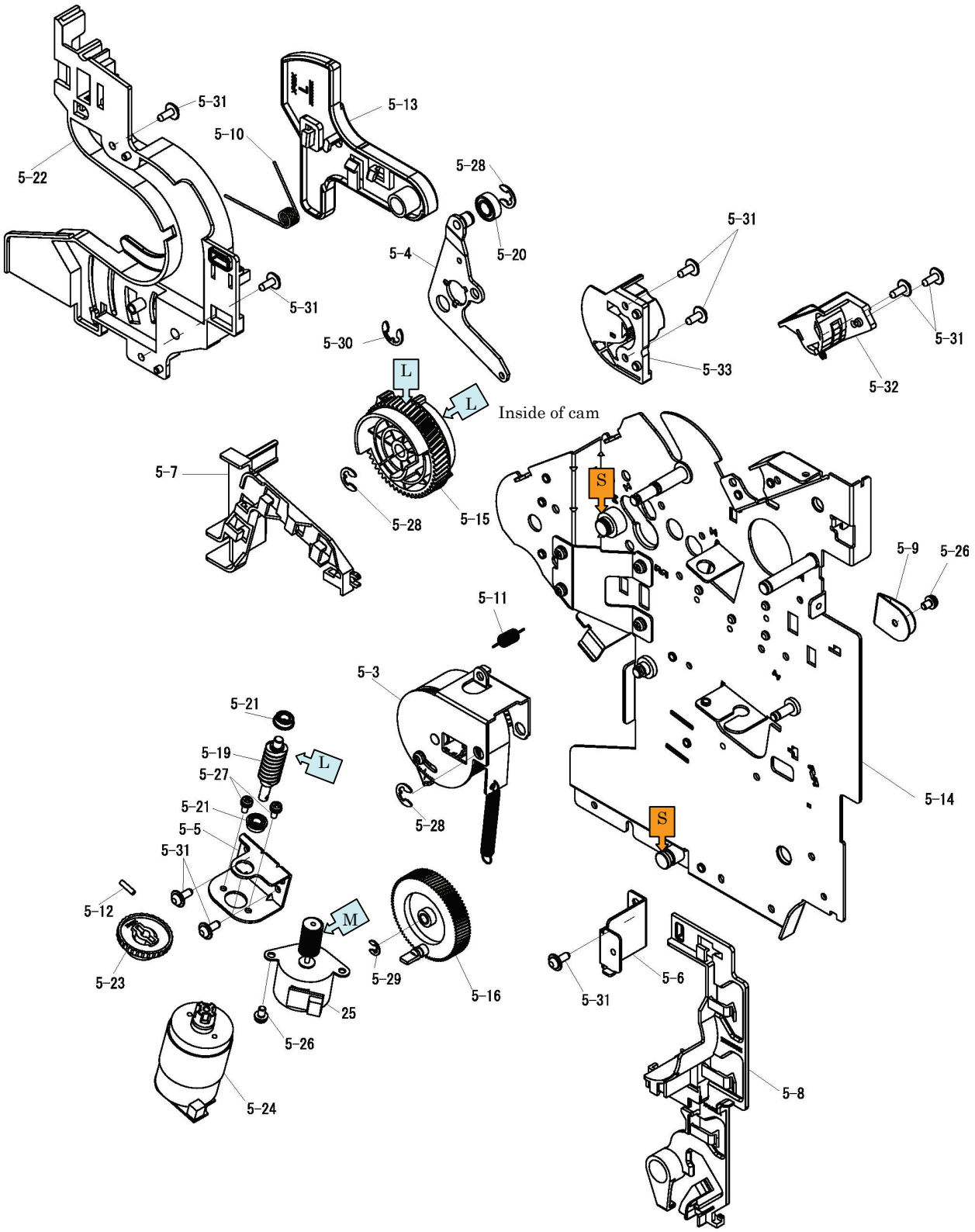
4-62 Wiring Harness
4pin → 4-63

4-65 Sensor Plate Assy
2pin 3pin

4-66 Paper Guide Assy
3pin

4-59 Wiring Harness
2pin → 5-24
4pin → 5-25
6pin → 2-10

5，Disassemble・Assemble（Mechanical frame L Assy）



Replacement Procedure Assembly,DRUM_Supply_Ribbon

1-22 COVER_MECHA_L
5-11 Spring_ribbon_Guide
5-28 E Ring 1 place

Note）Ribbon supply tension adjustments must be performed. (refer to Ch.4)

Replacement Procedure 5-15 GEAR_HEAD_PINCH_CAM_L

1-22 COVER_MECHA_L
Disengage the outer side of the 4-7 SPRING_PINCH in 2 places, left and right.
2-12 PCB MECHA SENSOR Assembly
5-28 E Ring 1 place.

Note) Be sure to lubricate gears and cams.
During assembly
5-15 GEAR_HEAD_PINCH_CAM_L and 6-11 GEAR_HEAD_PINCH_CAM_R
CAM-configuration must be matched on left and right sides. If they are not matched, it won't operate properly.

Replacement Procedure 5-16 Gear_Supply_Tension

2-12 PCB MECHA SENSOR Assembly
Remove the sprint of5-3 Assembly,DRUM_Supply_Ribbon
5-29 E Ring 1 place.

Replacement Procedure 5-33 SA,Holder_Ribbon_LT

5-31 screws 2 place

Replacement Procedure 5-32 SA,Holder_Ribbon_L

5-31 screws 2 place

Replacement Procedure 5-19 HeadUP_Worm_Gear

1-22 COVER_MECHA_L
Connector 2 pin（refer to Wiring Diagram 6）
5-5 Stay_Motor screws 2 places

Note）5-21 Bearing(d4-D8 F), 5-12 Straight Pin can drop. Be sure not to lose them.
After replacing, lubricate the 5-9 HeadUP_Worm_Gear.

Replacement Procedure 5-24 Motor Assy

1-22 COVER_MECHA_L
Connector 2pin（refer to Wiring Diagram 6）
5-5 Stay motor 2 screws.
2 screws

note）5-21 Bearing(d4-D8 F), 5-12 Straight Pin, 5-19 HeadUP_Worm_Gear, 5-23 Coupling_Motor can drop. Be sure not to lose them.

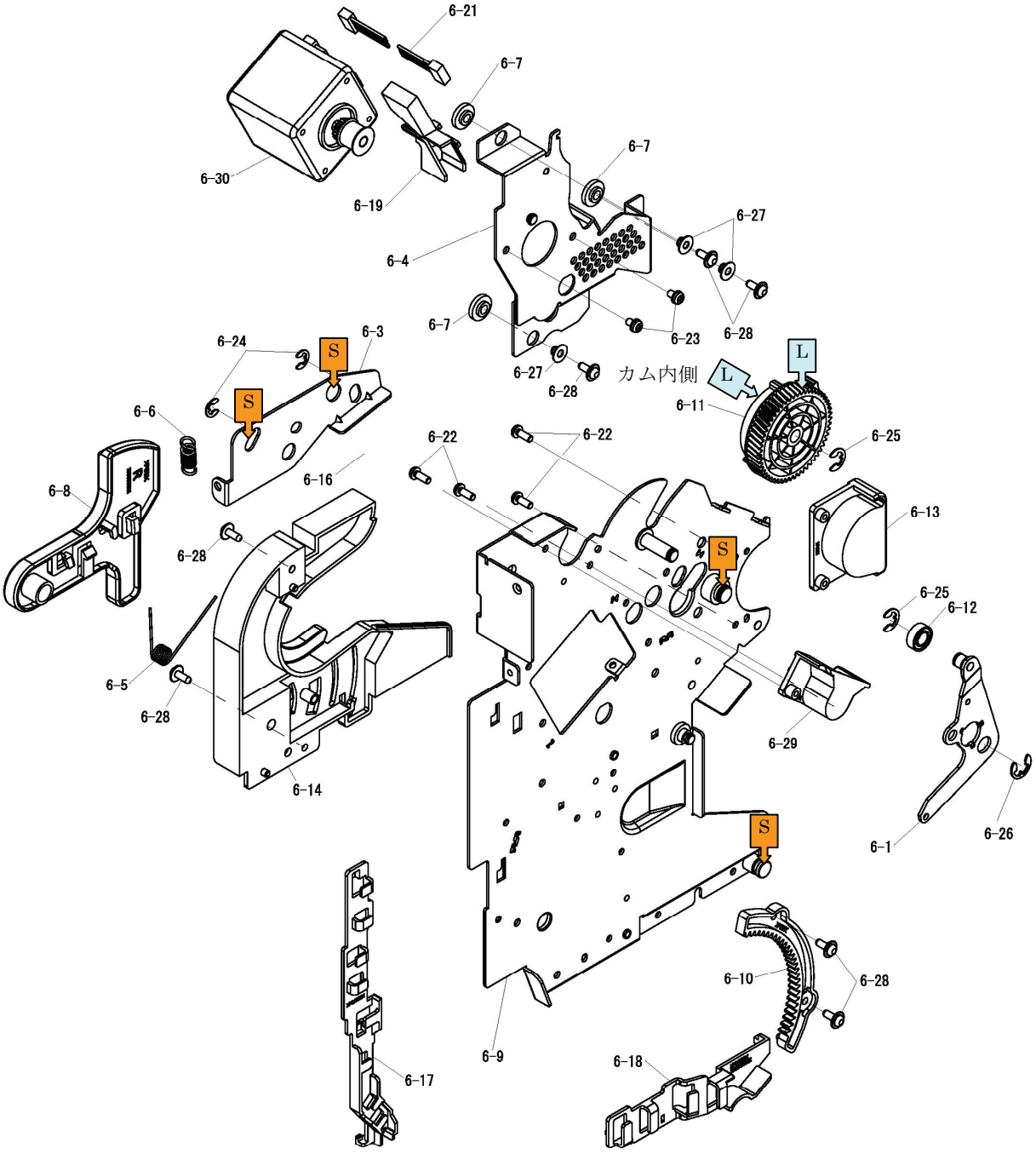
Replacement Procedure 5-25 Step_Motor_PM25L

1-22 COVER_MECHA_L
Connector 4pin（refer to Wiring Diagram 6）
1 screw

Replacement Procedure 5-20 Bearing(d6-D12)

1-22 COVER_MECHA_L
4-7 SPRING_PINCH
Remove the Plate_Pinch_UP_L with 2 E Rings. E Ring 1 place

6，Disassemble・Assemble（ Mechanical frame R Assy）



Replacement Procedure 6-10 GEAR_DUMPER
Disassembly mechanical Assy 2 screws.

Replacement Procedure 6-11 GEAR_HEAD_PINCH_CAM_R
1-23 COVER_MECHA_R
E Ring 1 place.
Note) Be sure to lubricate gears and cams.
During assembly
5-15 GEAR_HEAD_PINCH_CAM_L and 6-11 GEAR_HEAD_PINCH_CAM_R
CAM-configuration must be matched on left and right sides. If they are not matched, it won't operate properly.

Replacement Procedure 6-30 STEP_MOTOR_MAIN_LC
1-4 CASE_FRONT
1-2 CASE_SIDE_R
1-22 COVER_MECHA_L
1-23 COVER_MECHA_R
4-68 Auto Cutter Unit
4-9 BELT_TIMING
4-22 Pulley, Grip Roller
4-53 GEAR_HEAD_PINCH_IDLE
4-55 GEAR_ROLL_REDUCTION_3

Please remove parts respectively.

4-60 Wiring Harness 6pin（refer to Wiring Diagram 5）
6-18 HOLDER_CABCLE_B
Remove the 6-4 STAY_MAIN_MOTOR the screw from 3 places.
Note) Be careful not to drop or lose the 6-7 Damper_Motor and the 6-27 Spcer_Motor_Damper

Remove the connector, and remove the screws from 2 places
Note) Check the warnings for all parts.

Replacement Procedure 6-12 Bearing(d6-D12)
1-23 COVER_MECHA_R
4-9 BELT_TIMING
4-22 Pulley, Grip Roller
4-7 SPRING_PINCH
Remove the 6-1 PLATE_PINCH_UP_R the E Ring from 2 place
E Ring 1 place.

Replacement Procedure 6-13 Holder_Ribbon_RFID
1-23 COVER_MECHA_R
2 screws（Screw torque 0.60±0.5N・m）

Replacement Procedure 6-29 Holder_Ribbon_Supply_R
1-23 COVER_MECHA_R
3-22 screws 2 place

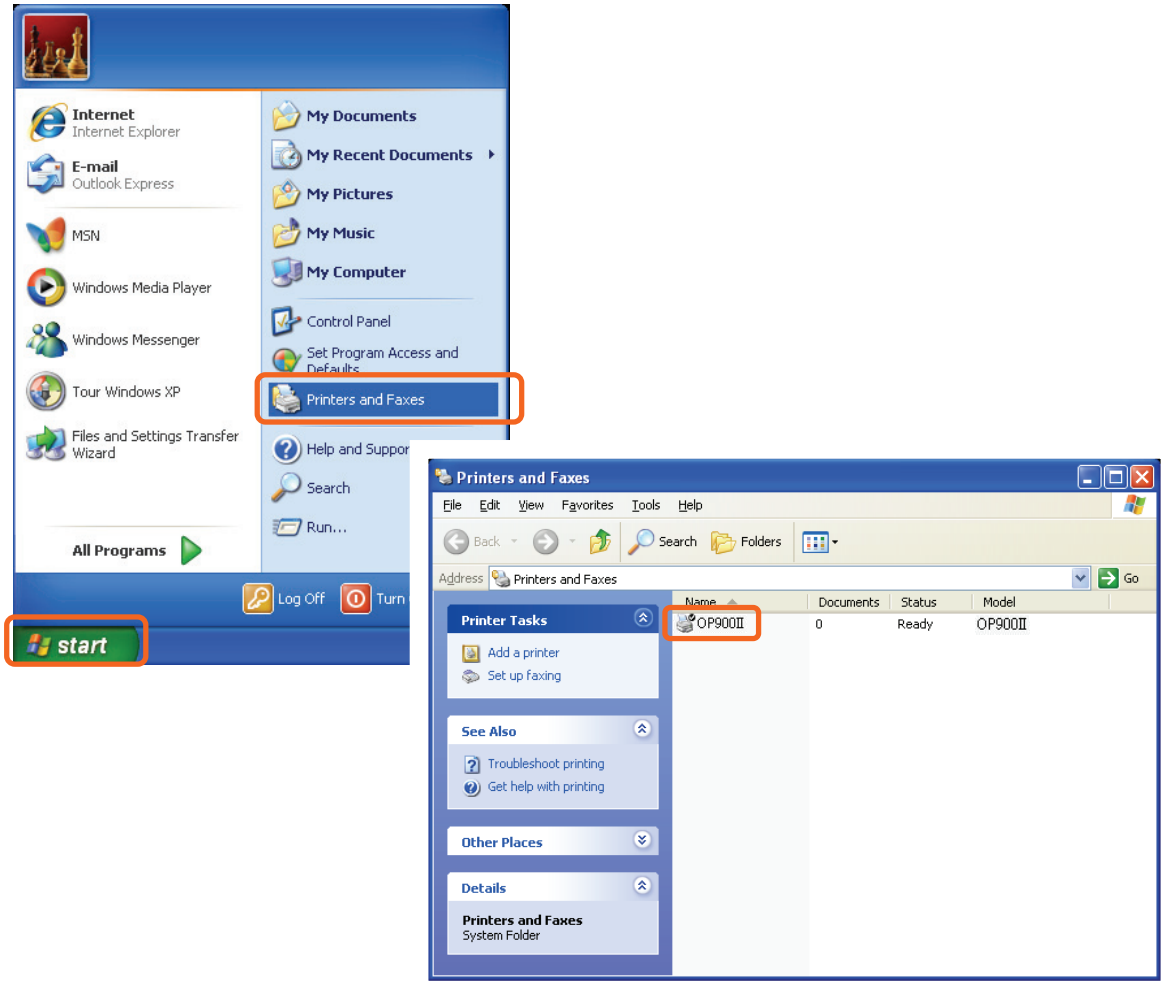
Chapter 3 Using OP2-Tools

1.Installing and Running OP2-Tools

1-1. Installation

(1) Check that the Printer Driver “OP900II” is installed in the computer. From the “START” menu, select “Printer and Fax”, and check that “OP900II” is installed there.

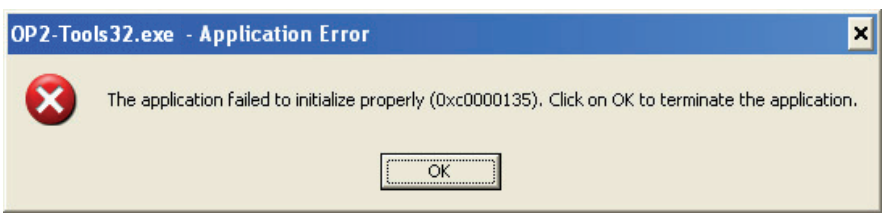
※ If the Printer Driver is not there, you need to install the Driver.
After installing it, reboot the computer.



(2) Copy the entire OP2-Tools directory (this directory) to the hard disk.

(3) To start up the application, run “OP2-Tools32.exe” or “OP2-Tools64.exe”.

Note) When the start of OP2-Tools by Windows XP and the following message are displayed, it is necessary to install Microsoft.Net Framework. (In Windows7 or Windows Vista, the .Net Framework is installed by the standard.)


OP2-Tools32.exe - Application Error
The application failed to initialize properly (0xc0000135). Click on OK to terminate the application.
OK

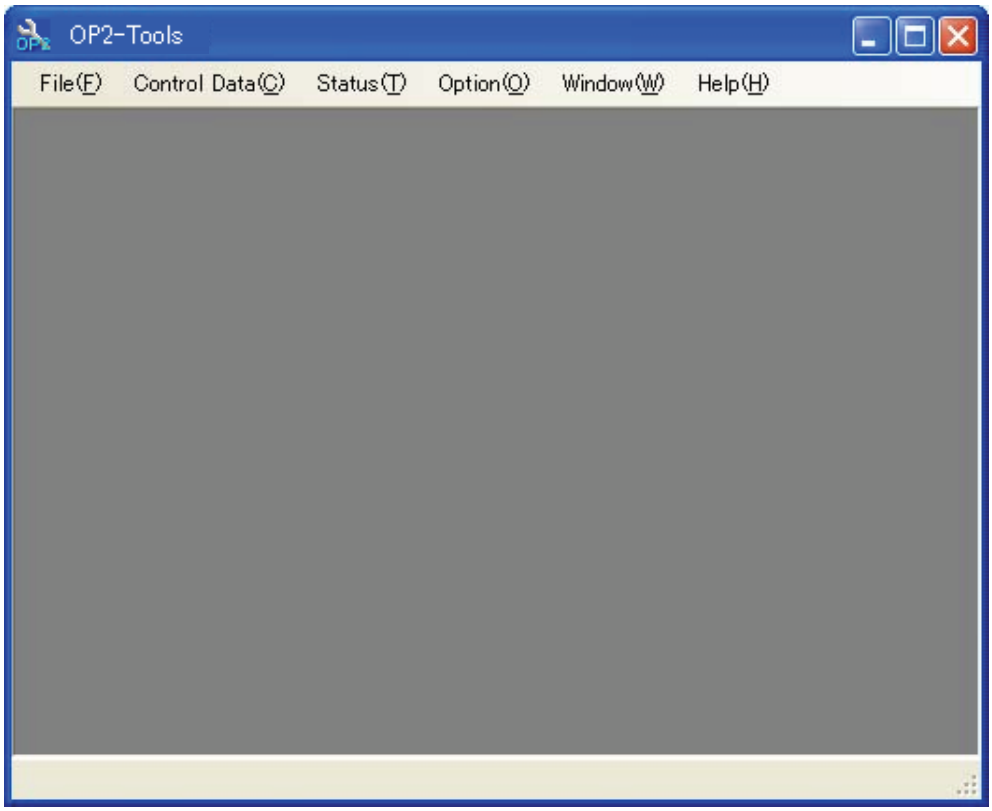
1-2. Starting up

(1) Connect the printer and the computer, and check that the printer is turned ON.

(2) Run “OP2-Tools32.exe”(32bit OS) or “OP2-Tools64.exe”(64bit OS).

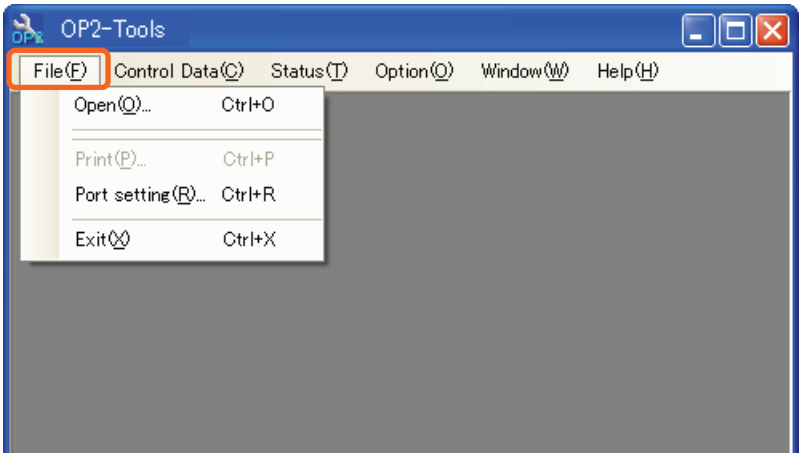
(3) If multiple printers installed on the computer, the "Please select printer" window will appear. Select “OP900II” here.

(4) The following window will open, and “OP2-Tools” will start.



2.Using OP2-Tools

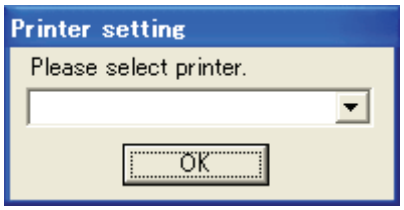
2-1. File



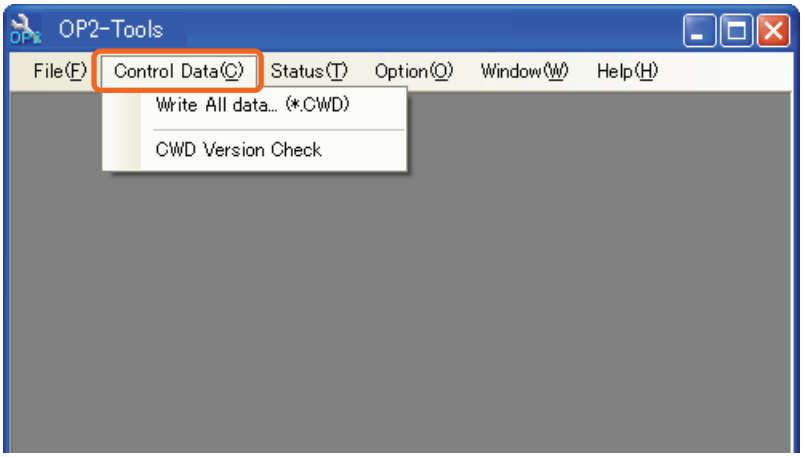
Display	Function
Open	This is not used.
Port setting	Selects the printer. (Selection is possible when multiple printers are connected.)
Exit	Closes OP2-Tools.

(1) Port setting

If multiple printers installed on the computer, the "Please select printer" window will appear. Select “OP900II” here.



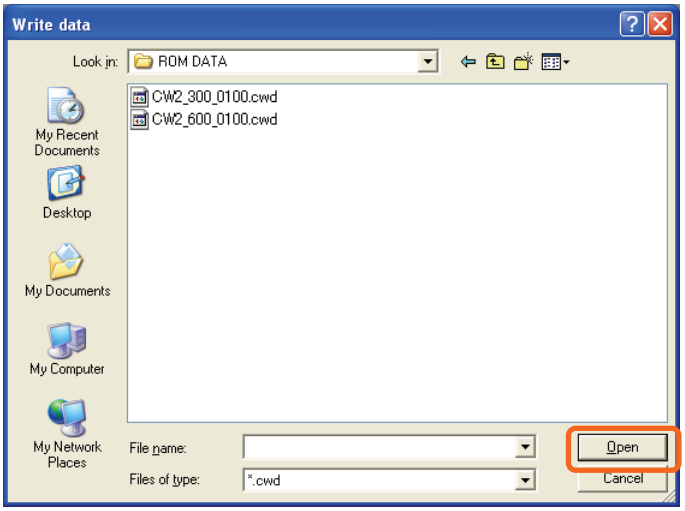
2-2. Control Data



Display	Function
Write All Data…(*.CWD)	Writes color control data to the printer.
CWD Version Check	Displays the printer's color control data version.

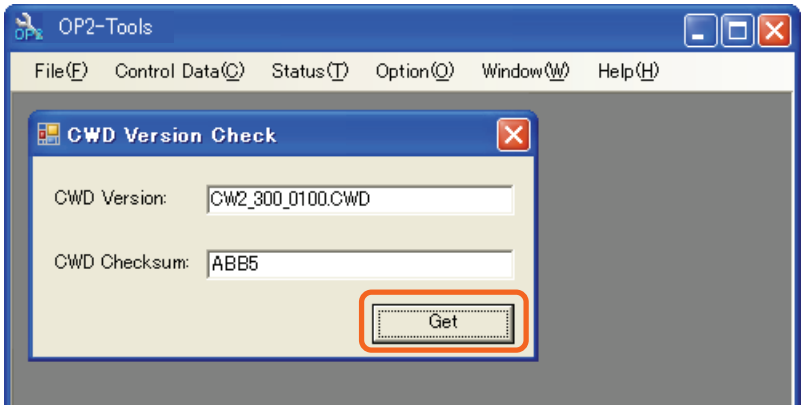
(1) Write All Data…(*.CWD)

This writes the color control data to the printer.
The file selection dialog box will open. Select the CWD Control data to be rewritten, and click on "Open".

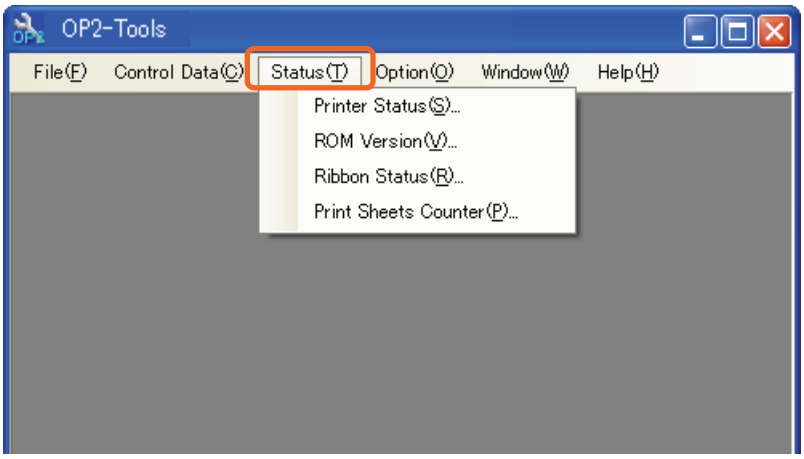


(2) CWD Version Check

To display the current color control data version, click on "Get".



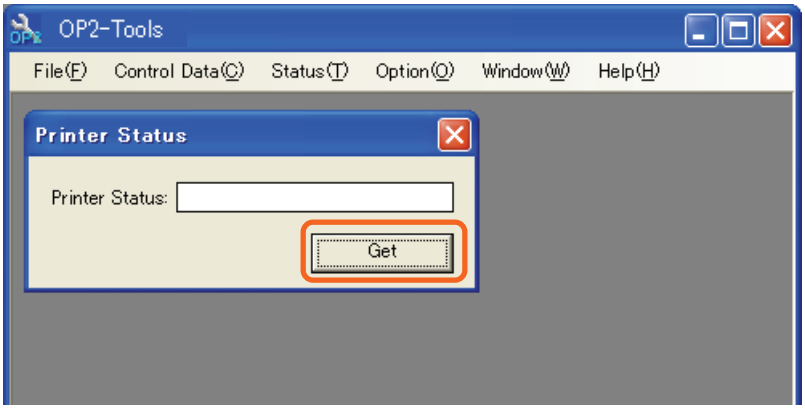
2-3. Status



Display	Function
Printer Status	Displays the current printer status.
ROM Version	Displays the printer's firmware version.
Ribbon Status	Displays the current ribbon status. Counter (quantity remaining), Lot No, Offset value (RFID Tag data)
Print Sheets Counter	Displays the printer's current life counter.

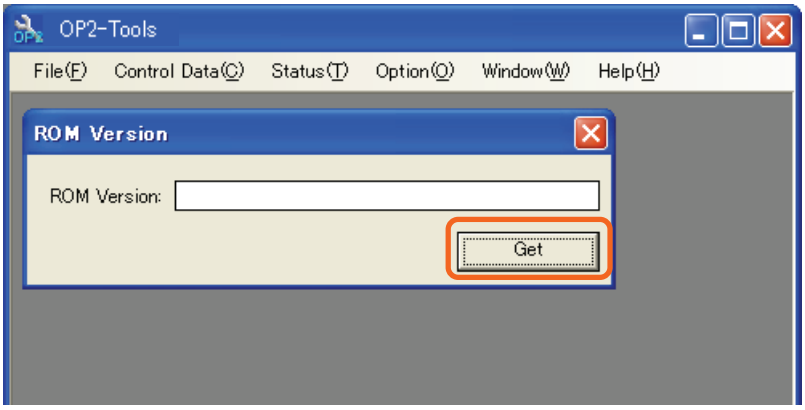
(1) Printer Status

To display the printer's current status, click on "Get".



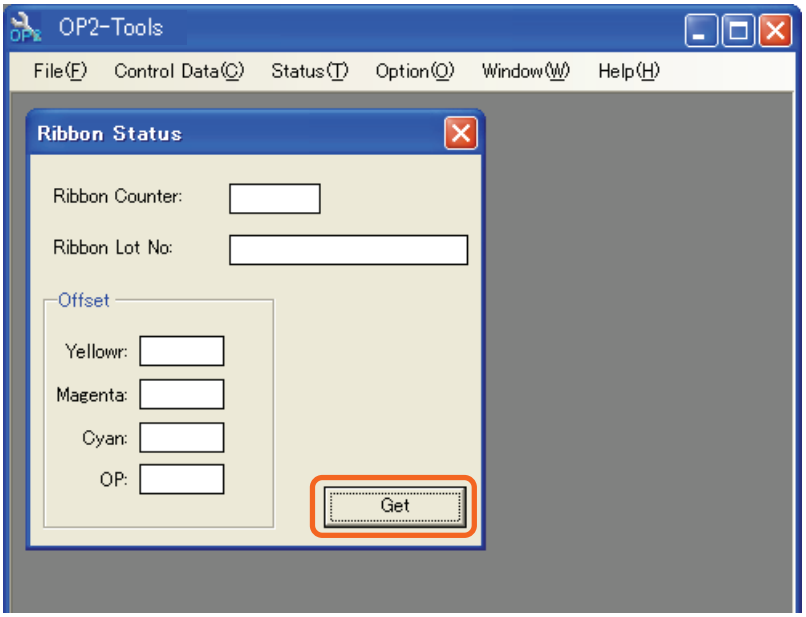
(2) ROM Version

To display the current firmware version, click on "Get".



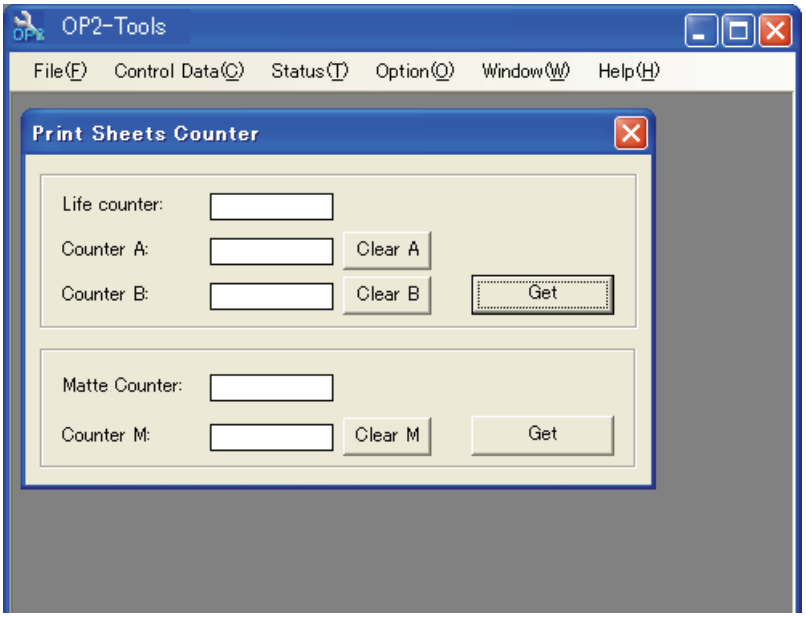
(3) Ribbon Status

To display the current ribbon status, click on “Get”.

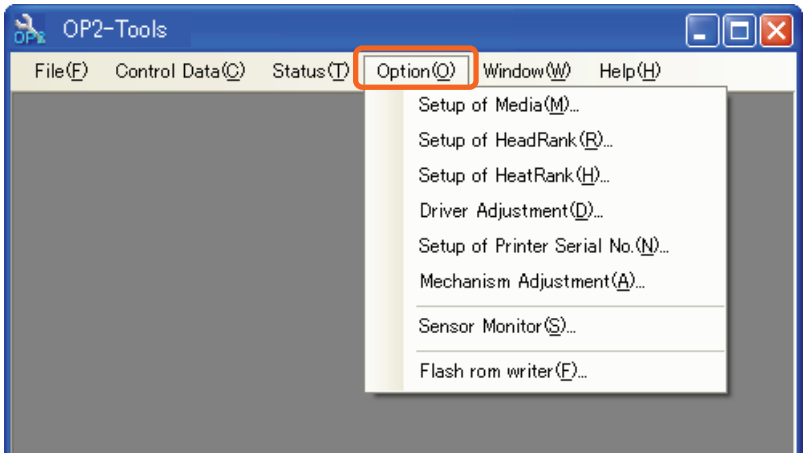


(4) Print Sheets Counter

To display the Life counter, Counter A/B, and Matte Counter, Counter M, click on “Get”.
To clear the Counter A/B, click on “Clear A” or “Clear B”.
To clear the Counter M, click on “Clear M”.



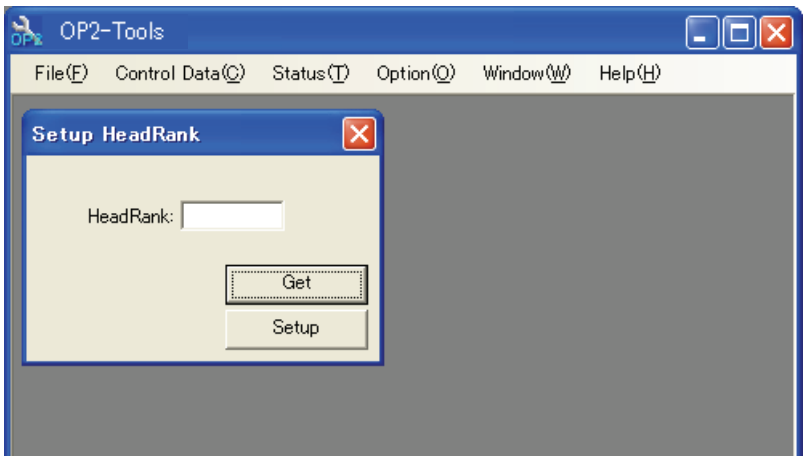
2-4. Option



Display	Function
Setup of Media	Not used
Setup of HeadRank	Displays and writes the head rank.
Setup of HeatRank	Displays and writes the heat rank.
Driver Adjustment	Displays and writes the driver adjustment.
Setup of Printer Serial No	Displays and writes the serial number.
Mechanism Adjustment	Displays and writes the adjustment values for the print position and cut scrap length.
Sensor Monitor	Displays the voltage and temperature of each sensor in the printer.
Flash rom writer	Writes the firmware to the printer.

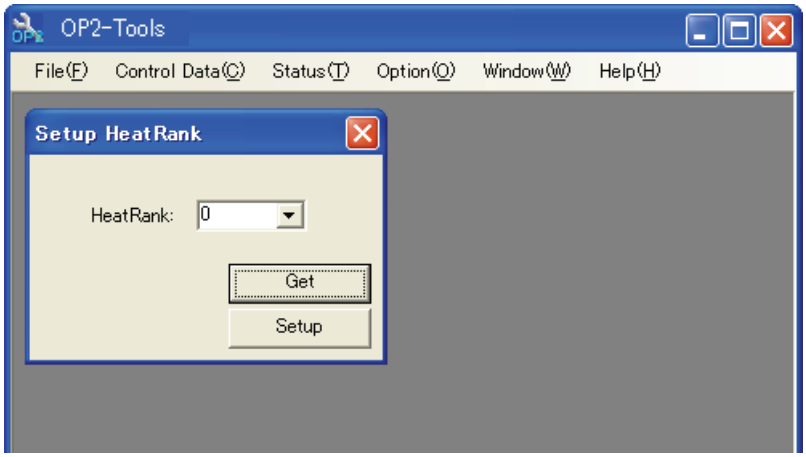
(1) Setup of HeadRank

To display the current Head Rank, click on “Get”.
Enter the thermal print head resistance value and click “Setup” to write.



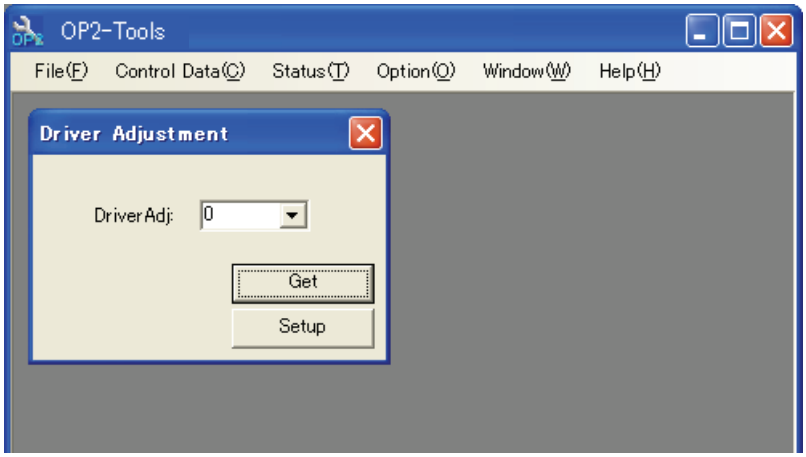
(2) Setup of HeatRank

To display the Heat Rank, click on “Get”.
Enter the value from the revision label inside the printer and click “Setup” to write.



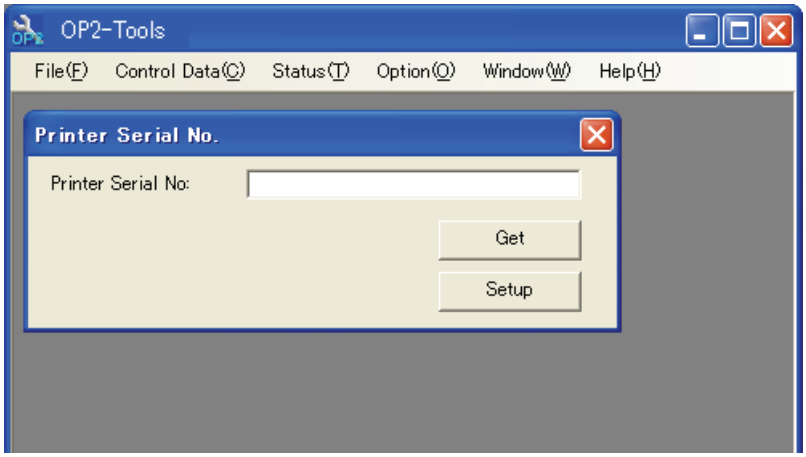
(3) Driver Adjustment

To display the Driver Adjustment values, click on “Get”.
Enter the Driver Adjustment value stuck on the driver board, and click on "Setup".
The adjustment value will be written to the printer.



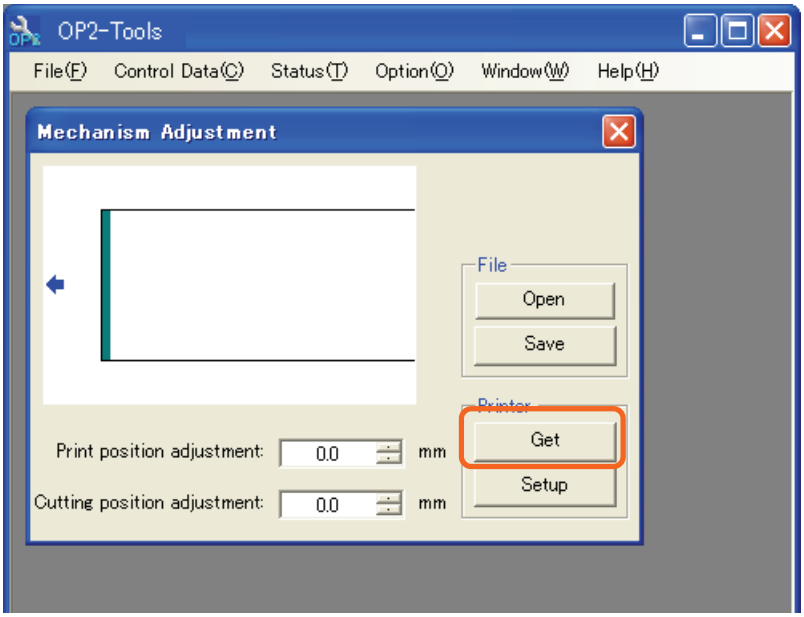
(4) Setup of Printer Serial No

To display the serial number, click on “Get”.
Enter the serial number on the rating plate and click “Setup” to write.



(5) Mechanism Adjustment

To display the current print position and cut scrap length adjustment values, click on “Get”.

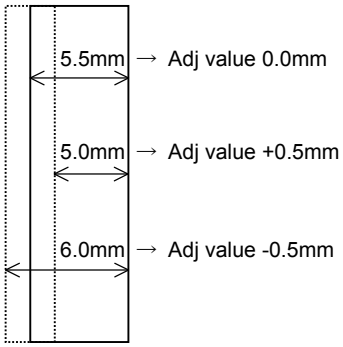


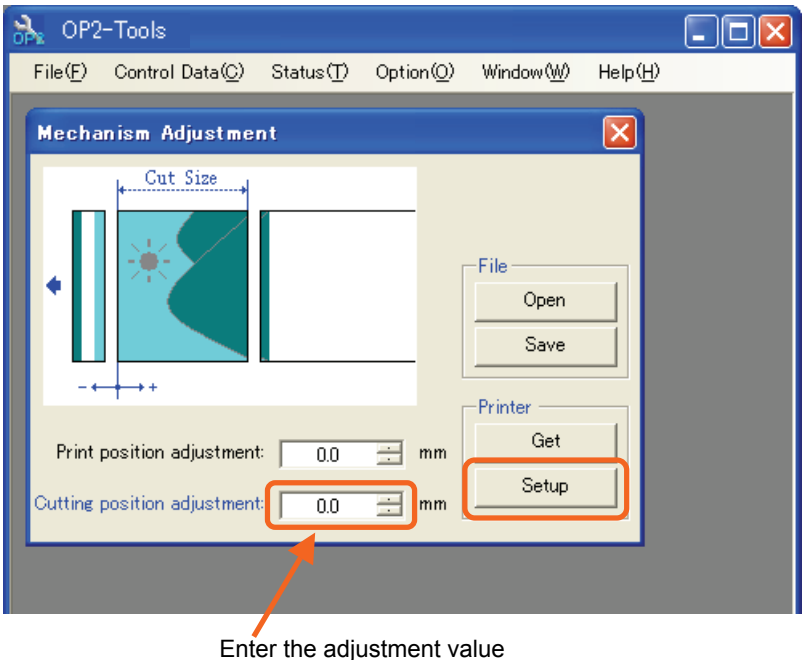
① Cutting position adjustment

This adjusts the cut scrap length for the first print.
Print one all-gray sheet. Then measure the cut scrap length from it.
Enter the adjustment value and click on “Setup”. The adjustment value will be written to the printer.

Print result	Cause		Correction
Scrap length is shorter than 5.5 ㎜	Distance from the sensor to the cutter is longer than ideal.	→	Increase (+) the Cutting position adjustment by the length lacking
Scrap length is longer than 5.5 ㎜	Distance from the sensor to the cutter is shorter than ideal.	→	Decrease (-) the Cutting position adjustment by the excess length

■Example



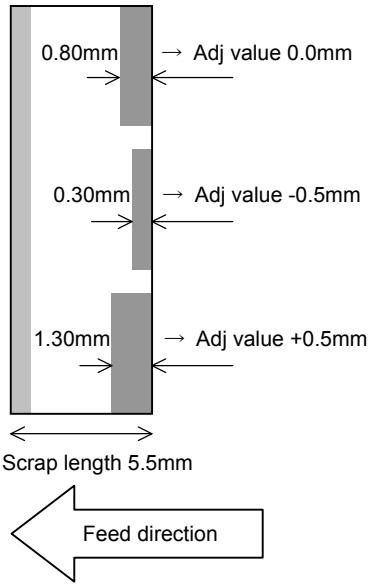


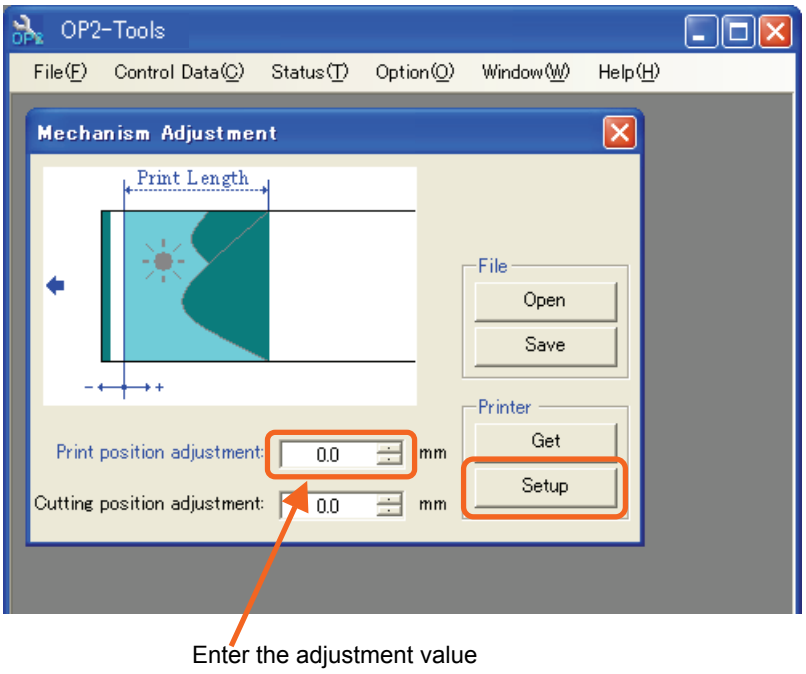
② Print position adjustment

This adjusts the length of the remaining printed area on the print scrap (post-printing) from the second and later prints.
Print 2 successive all-gray sheets.　Then measure the remaining print length.
Enter the adjustment value and click on “Setup”.　The adjustment value will be written to the printer.

Print result	Cause		Correction
Remaining print length is less than 0.8 ㎜	Distance from the sensor to the head is longer than ideal.	→	Decrease (-) the Print position adjustment by the length lacking
Remaining print length is more than 0.8 ㎜	Distance from the sensor to the head is shorter than ideal.	→	Increase (+) the Print position adjustment by the excess length

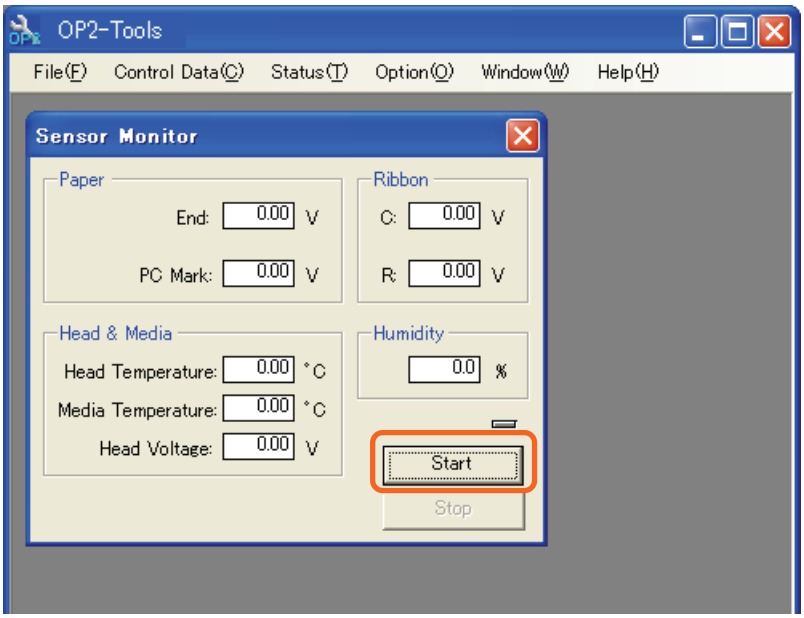
■Example





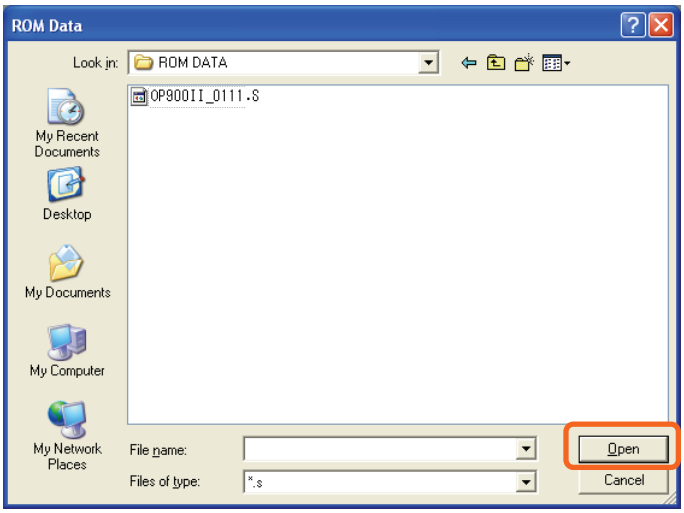
(6) Sensor Monitor

To display the current printer voltage, temperature, and humidity of the internal sensors, click on “Start”.

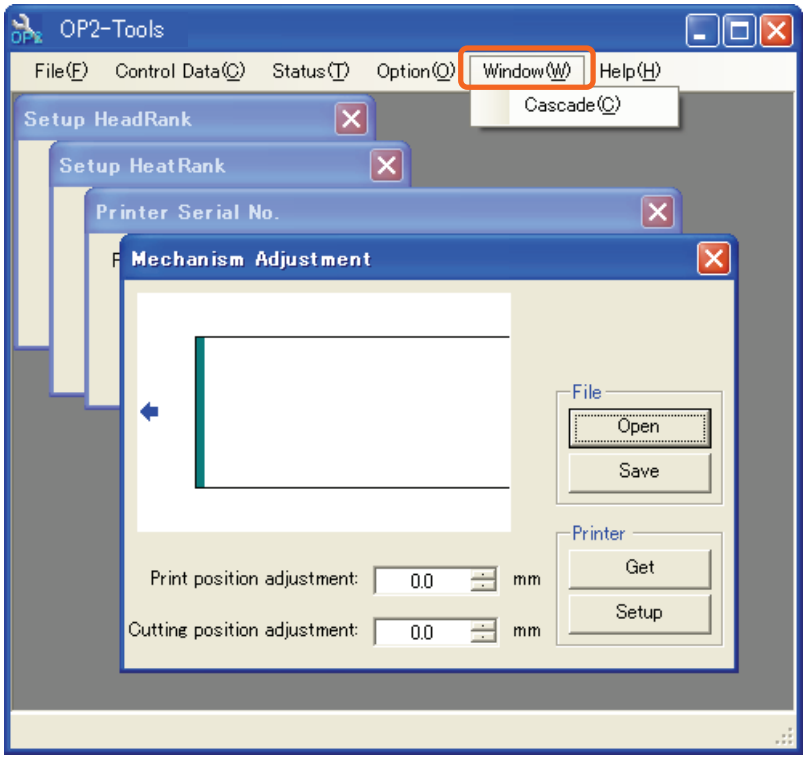


(7) Flash rom writer

This writes the firmware to the printer.
The file selection dialog box will open. Select the ROM data to be rewritten, and click on “Open”.

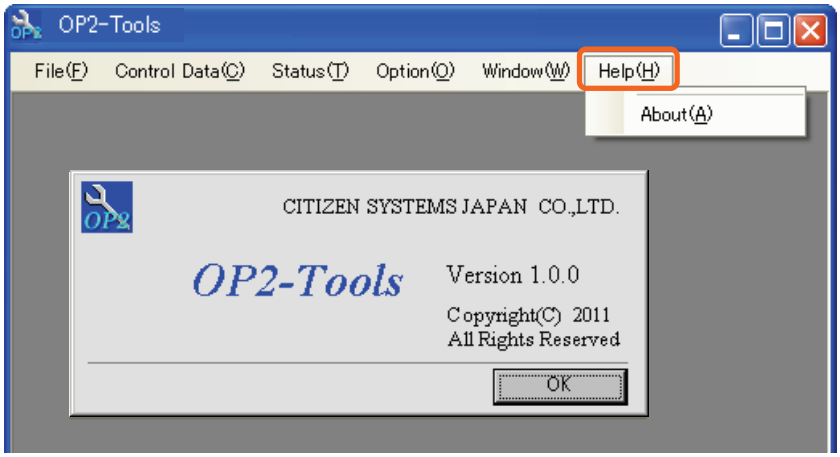


2-4. Window



Display	Function
Cascade	Lines up the open Windows.

2-5. Help



Display	Function
About	Displays the OP2-Tools version.

Chapter 4 Adjustment settings

Post-Reassembly Adjustment and Confirmation Items

After replacing parts and Assembly., the adjustments and confirmations necessary are shown below.

Replacement / Adjustment	Power Unit	Main PCB	Driver board	Head	Each sensor	Cutter Assembly	Ribbon tension unit
Head power voltage	○						
Sensor voltage		○	○		○		
Head Rank Setting. (Head resistance value)		○		○			
Heat Rank (Head adjust value)		○					
Print position setting Cut position setting		○			○	○	
Serial No		○					
Firmware. CWD data setting		○					
Ribbon tension setting							○
Driver board rank setting		○	○				

CAUTION

- Please use the power cable that came with the printer, and be sure to attach the ground wire.
- Use a USB cable with shielding suitable for the USB 2.0 specification. Otherwise unexpected troubles may arise.

1, Head Power Voltage Adjustment

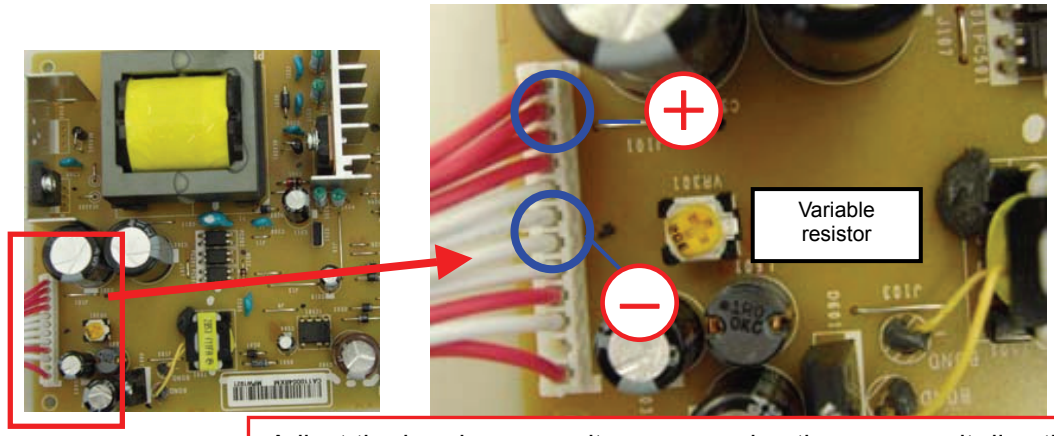
① This adjusts the Head Power Voltage. Turn the printer ON.

Caution

The Power Unit has high voltage, and can get hot, so use caution.

② Adjust using the variable resistor while monitoring Power Unit CN101 with a meter.

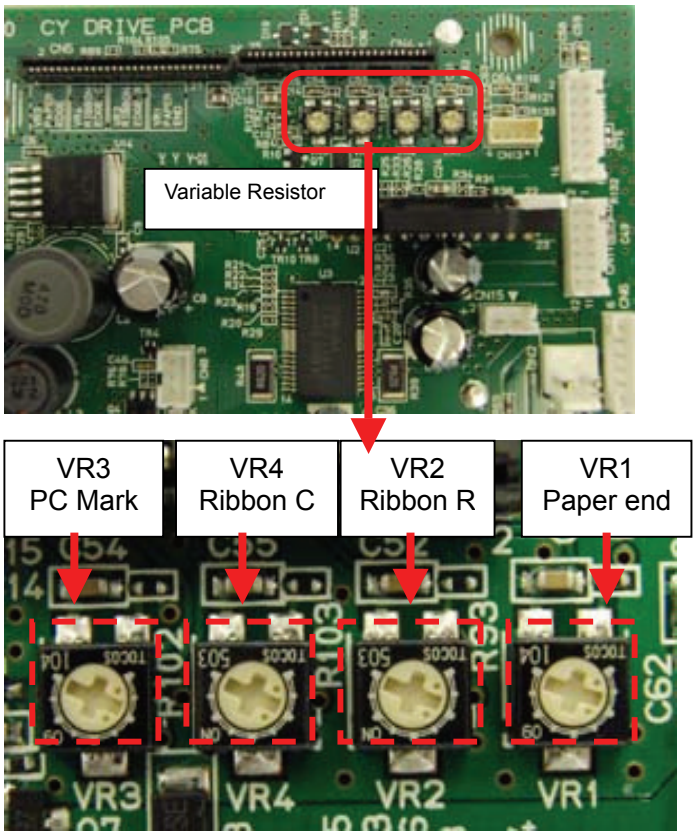
Head Power Voltage Range	35.0V ±0.05V



Adjust the head power voltage measuring the power unit directly with a meter. Do not adjust using OP2-Tools “Head Voltage” value setting.

2, Sensor Voltage Adjustment

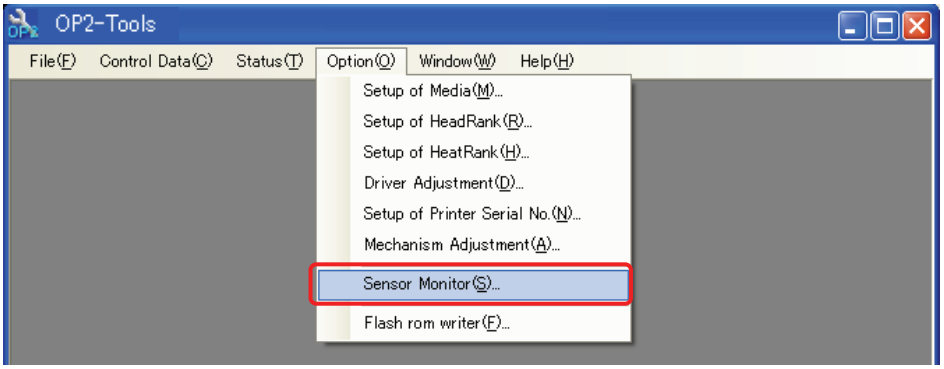
This is set using the variable resistors on the Driver Board.



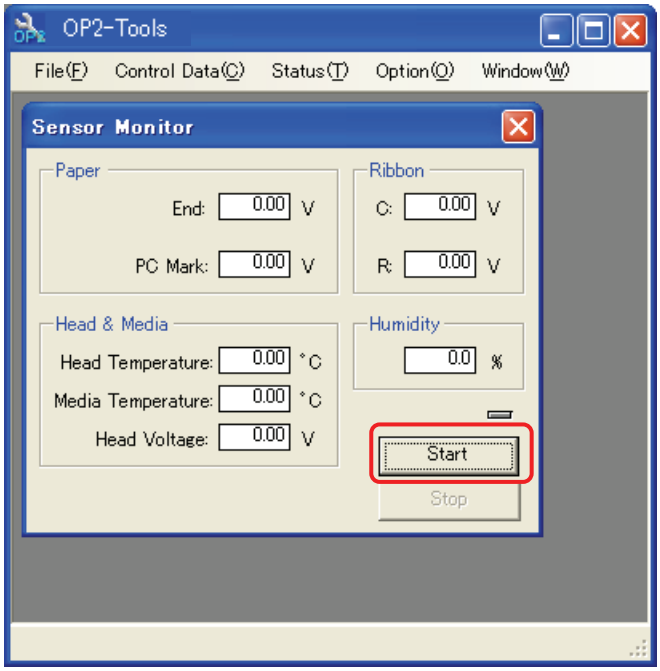
Signal	Resistor
Paper end	VR1
Ribbon R	VR2
PC Mark	VR3
Ribbon C	VR4

Measuring the Sensor Voltage using OP2-Tools.

① Turn the printer ON.
② Run OP2-Tools.
③ Select the printer for Sensor Voltage Adjustment.
④ Under the “Option” menu, click on “Sensor Monitor”.



⑤ “Sensor monitor” will appear. Click on “Start” to start measuring.



Adjustment ranges

Sensor Name	Register	When adjusting		When checking operation	
		Status	Value (V)	Status	Standard (v)
Paper end	VR1	With Paper	0.7±0.05	W/O Paper	4.5 or more
PC Mark	VR3	W/O Paper	0.4±0.05	With Paper	2.9 or more
Ribbon R	VR2	Cyan	5.0±0.05	Ribbon mark (black)	0.5 or less
Ribbon C	VR4	Cyan	5.0±0.05	Ribbon mark (balck)	0.5 or less

※ When adjusting, prepare unused paper.

（1）Adjusting Paper Sensor System

Perform the Paper Detection Sensor (VR1, VR3) adjustments as follows.

① Turn the printer ON.
② Run OP2-Tools, and select the printer to be adjusted.
③ Run the OP2-Tools Sensor Monitor, and begin measuring.
④ Adjust each sensor.

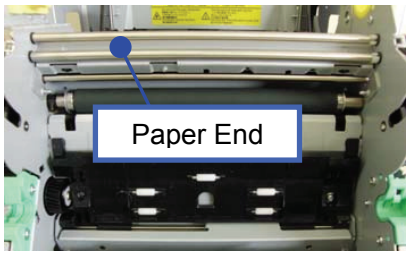
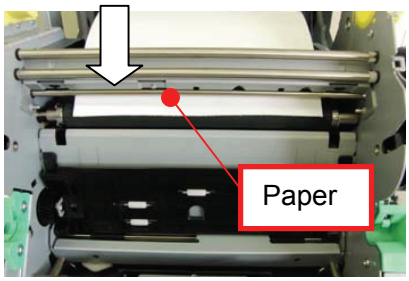
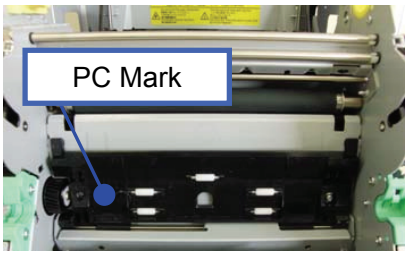
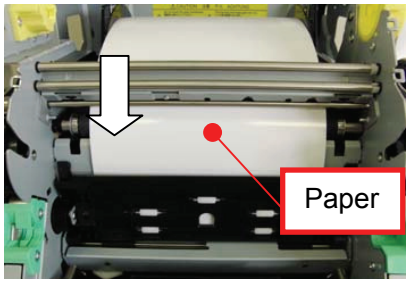
（Ex）Adjusting Paper End Sensor（VR1）

When adjusting

In “Adjustment Ranges” on the previous page, the status for adjusting the Paper End Sensor says “With paper”, so (unused) paper should be inserted at the Paper End Sensor location.
Now, adjust resistor VR1 on the Main Board so that the “Paper-End” value on the Sensor Monitor is “0.7±0.05”.

When checking operation

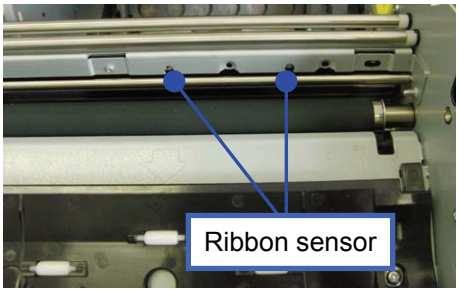
In “When checking operation” on the previous page, the status for checking the Paper End Sensor operation says “W/O paper”, so remove the paper inserted for adjustment.
Now check that the “Paper-End” value on the Sensor Monitor meets the standard value “4.5 or more”.

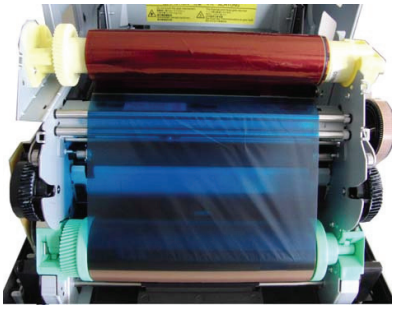
Sensor position	Adjusting	
		Insert the paper, until the edge of paper comes on the platen.
		Until the edge of paper bumps. It is seen from the window.

（2）Adjusting the Ribbon Sensors

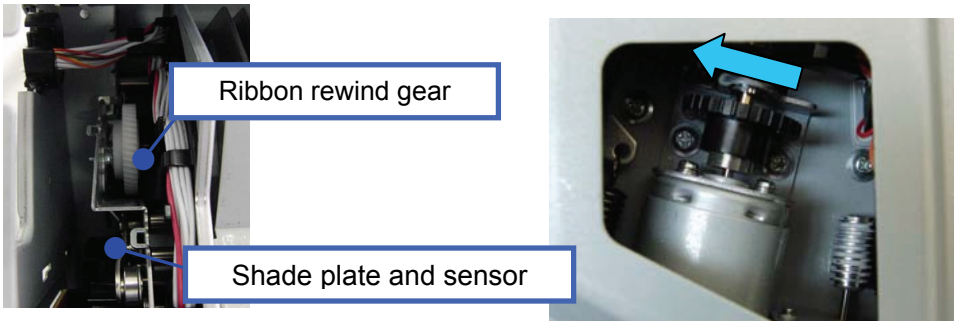
Monitor the Ribbon Sensor R, C (VR2, VR4) as follows.

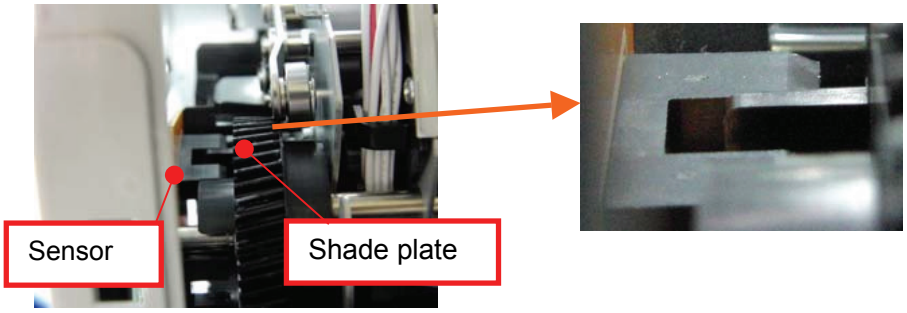
① Turn the printer ON.
② Run OP2-Tools and select the printer to be adjusted.
③ Run the OP2-Tools Sensor Monitor, and begin measuring.
④ Set the ribbon so that the Cyan area is over the sensor. ※ Use an unused section of ribbon.



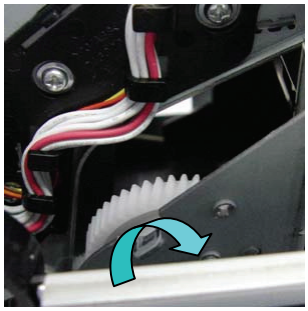


⑤ Manually rotate the head up roller, so that the shading plate is positioned to block the sensor.





⑥ Adjust each ribbon sensor.
⑦ Slowly rotate the ribbon uptake gear, and check the voltage as the ribbon mark (black area) passes each sensor..



⑧ Turn the power OFF, then ON, and return the head up cam to its home position.

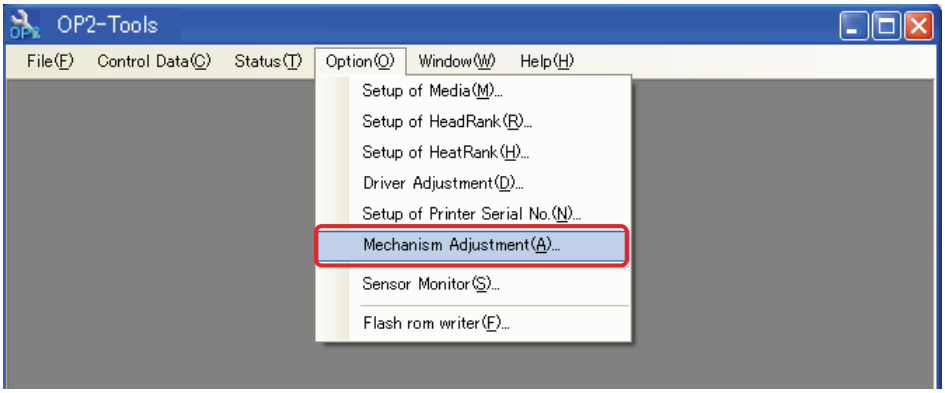
3, Mechanism Adjustments

Adjusting cut scrap length and print position

※These adjustments are made to compensate for mechanical deviances (cutter, sensor).

① Run OP2-Tools.

② Under the “Option” menu, click on “Mechanism Adjustment”.



※Before starting adjustments, set the cutting position and print position values at 0.0 ㎜.

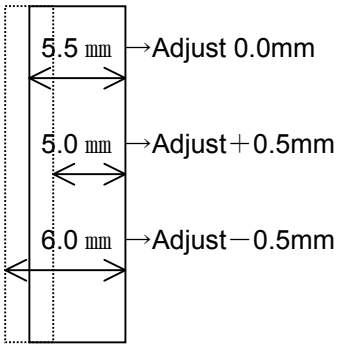
Procedure 1. Measure the cut scrap, and adjust the cut position.

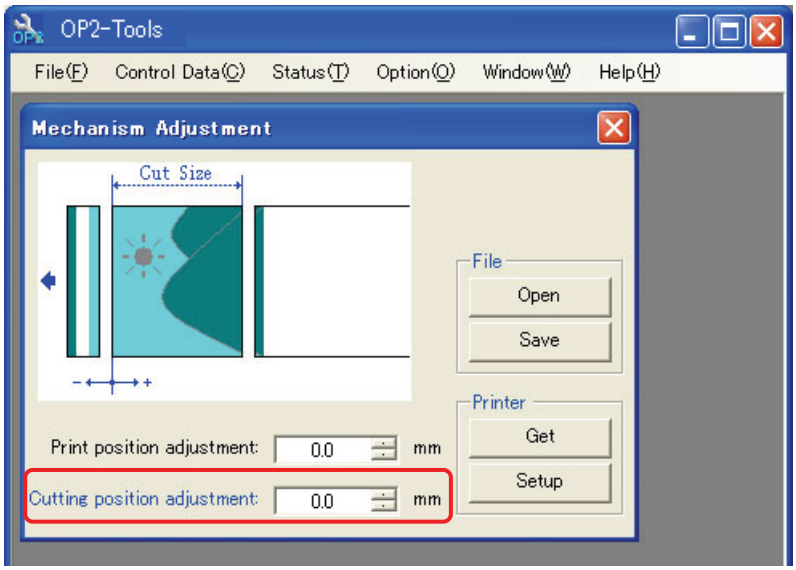
Either through initialize, or printing one image, make sure that the end of the paper is parallel with the cutter.

Print 1 all-gray image. Then measure the cut scrap from this print.

Print result	Reason		Adjustment
First cut scrap is shorter than 5.5 mm	Distance from sensor to cutter is greater than the ideal value	→	Set the Cutting position adjustment adding the amount short
First cut scrap is longer than 5.5 mm	Distance from sensor to cutter is less than the ideal value	→	Set the Cutting position adjustment subtracting the amount long

Example :



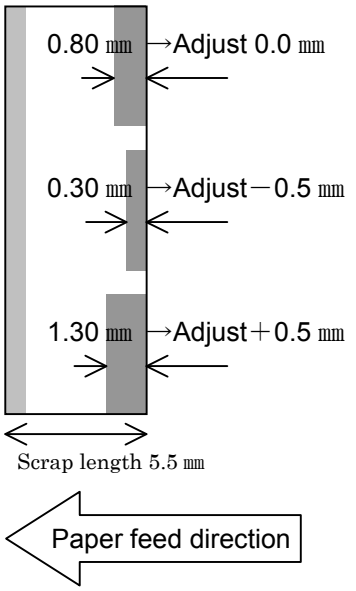


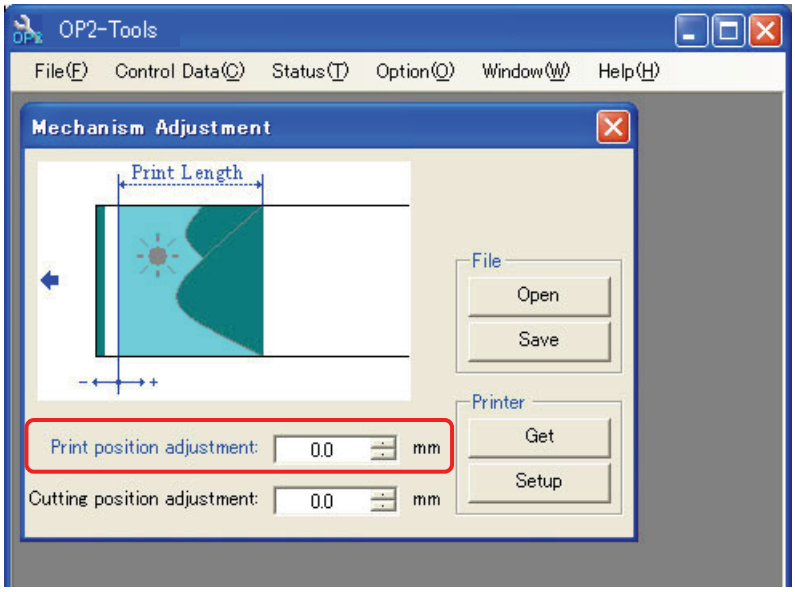
③ Enter the value, and click the “Setup” button. The setting will be written to the printer.

Procedure 2. After adjusting the scrap length, measure the printed area length remaining in the scrap from the 2nd print, and adjust the print position. Adjusting the print position will not affect the cut scrap length.

Print result	Reason		Adjustment
Printed area in scrap is less than 0.8mm	Distance from sensor to head is greater than the ideal value	→	Set the Print position adjustment subtracting the amount short
Printed area in scrap is more than 0.8mm	Distance from sensor to head is less than the ideal value	→	Set the Print position adjustment adding the amount long

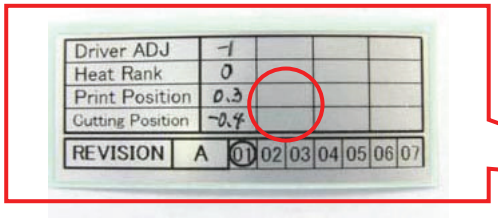
Example :



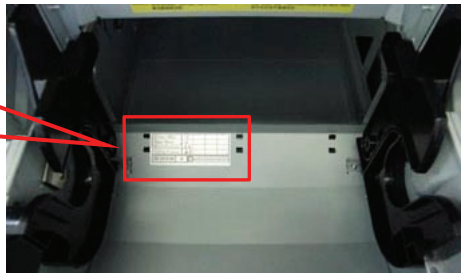


④ Enter the value and click the “Setup” button. The setting will be written to the printer. (The values set to the printer can be checked by clicking “Get” in the “Printer” menu.

⑤ Write the adjusted values on the Revision seal on the bottom inside the printer.



There is a Revision seal on the bottom inside the printer, with setting value when the printer left the factory. Write the newly adjusted values on the seal.



When replacing the Main Board

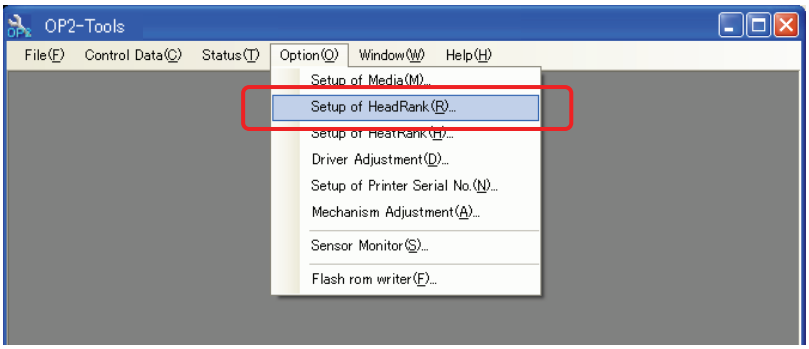
① Before replacing the Main Board, either write down the various setting values, or check the Revision seal on the bottom inside the printer.

② Enter the values checked in ①.

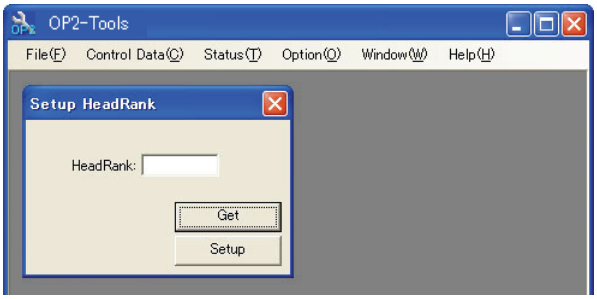
4, Thermal Print Head Settings

(1) Setting “Head Rank”

① Check the Thermal Print Head resistance value.
② Turn the printer ON.
③ Run OP2-Tools and select the printer to be set.
④ Under the “Option” menu, click on “Setup of HeadRank”.

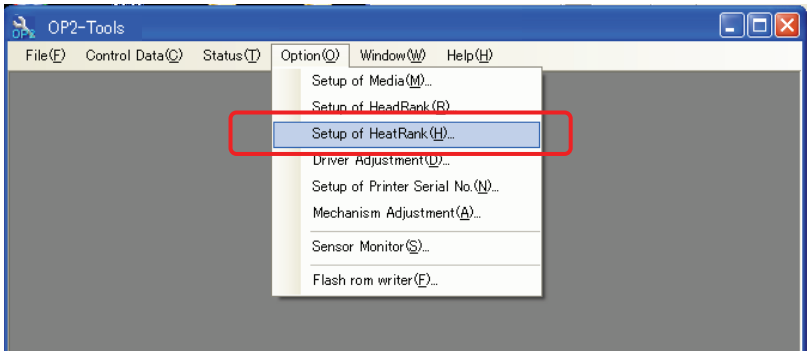


⑤ Enter the Thermal Print Head resistance value, and click on “Setup”.
⑥ Click on “Get”, and check the “HeadRank” (head resistance value setting).
※When replacing the Main Board, enter the values from the previous board.

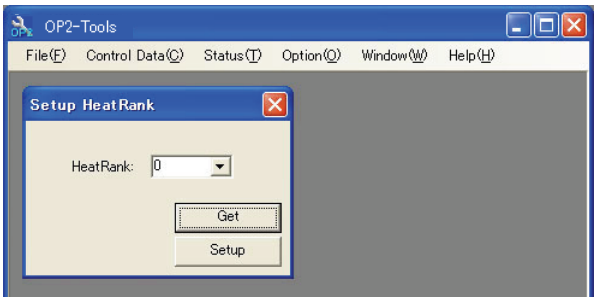


(2) Setting “Heat Rank”

① Check the values on the Revision seal on the bottom inside the printer.
② Under the “Option” menu, click on “Setup of HeadRank”.



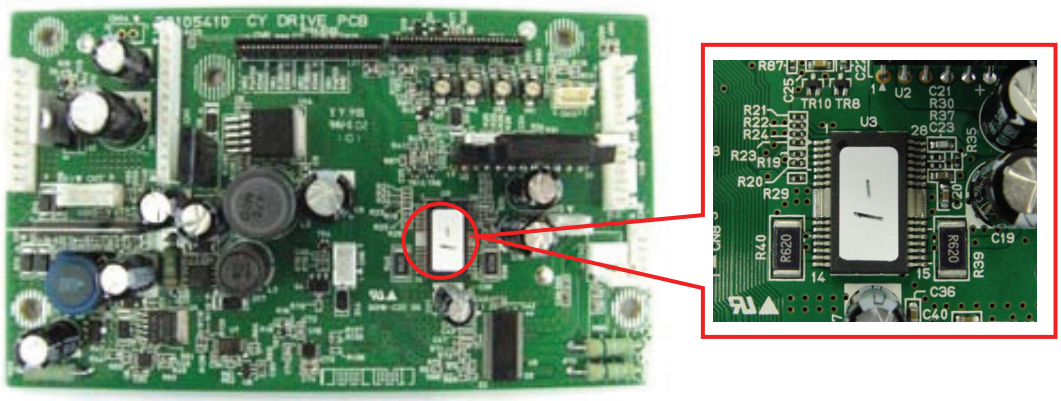
③ Input the “Heat Rank” and click on “Setup”.
④ Click on “Get”, and check the “HeatRank” (head adjustment value).
※When replacing the Main Board, enter the values from the previous board.



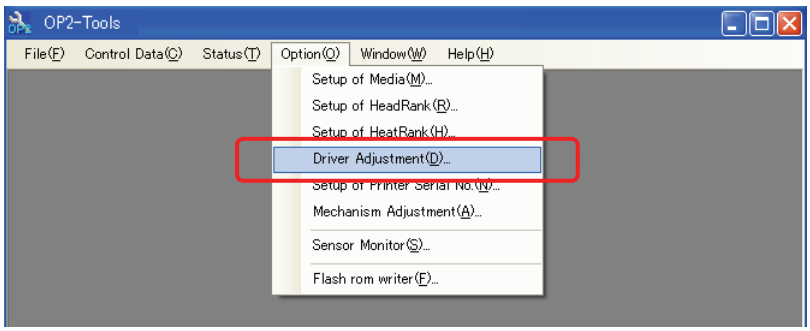
5, Driver board setting

When Replacing the Main Board or the Driver Board.

① When replacing the Driver Board, check the value on the seal of the driver board.
When replacing the Main Board, check the value on the revision seal or the driver board.

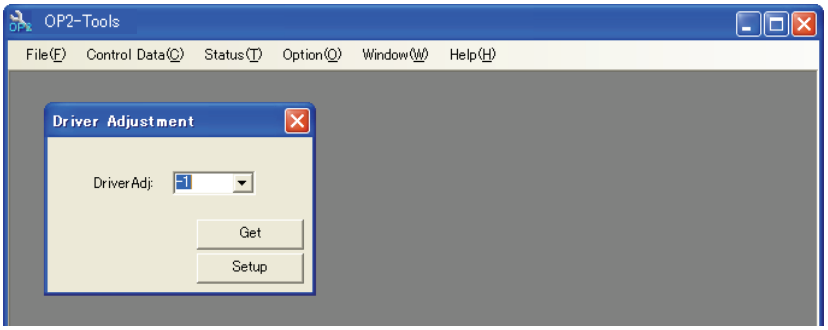


② Under the “Option” menu, click on “Driver Adjustment”.

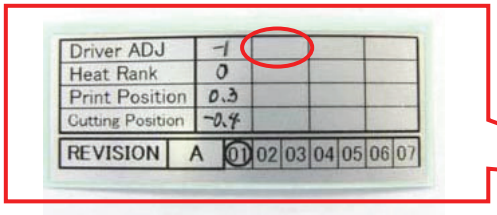


③ Enter the value checked in ①, and click on “Setup”.

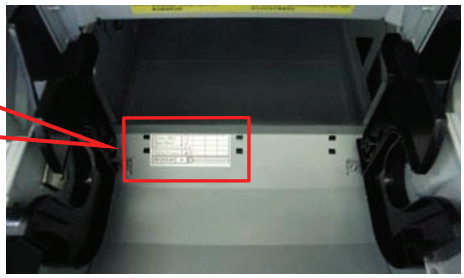
④ Click on “Get” and check the “Driver Adj value”.



⑤ When replacing the driver boad,write the adjusted values on the Revision seal on the bottom inside the printer.



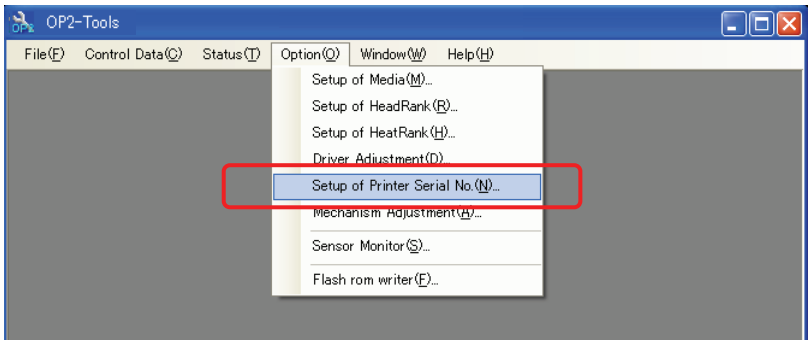
There is a Revision seal on the bottom inside the printer, with setting value when the printer left the factory. Write the newly adjusted values on the seal.



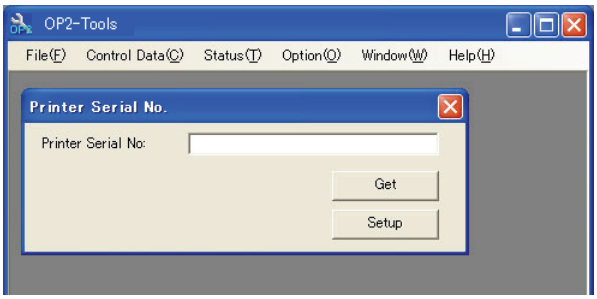
6, Checking and Setting the Serial Number

When Replacing the Main Board

① Before replacing the Main Board, get the value and write it down, or check the rating plate.
② Turn the printer ON.
③ Run OP2-Tools and select the printer to be set.
④ Under the “Option” menu, click on “Setup of Serial No”.



⑤ Enter the value checked in ①, and click on “Setup”.
⑥ Click on “Get” and check the “Setup of Serial No”.

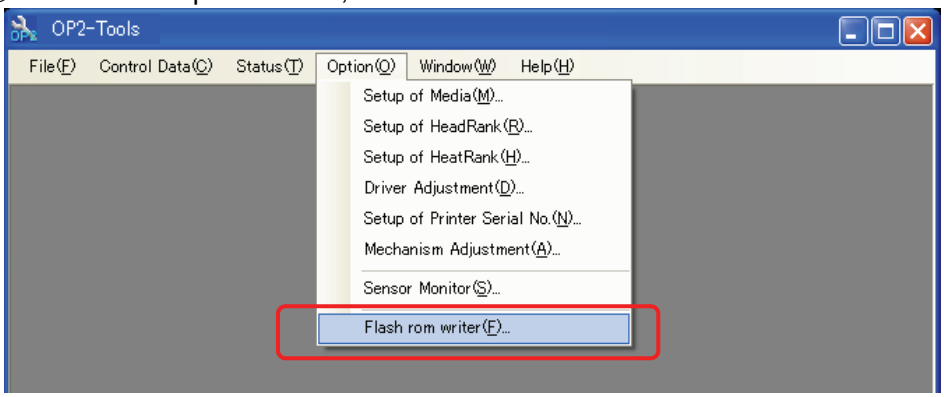


7, Rewriting Firmware and CWD Control Data

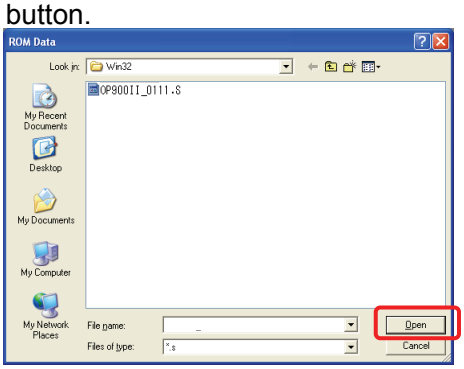
【Note】While rewriting firmware and CWD control data (when the green LED is blinking), do not turn the printer OFF or unplug the USB cable

(1) Rewriting Firmware

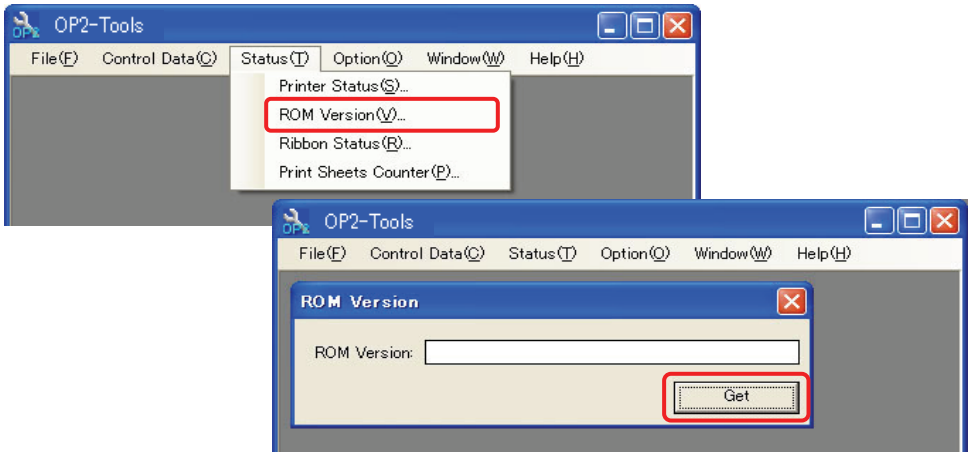
① Turn the printer ON.
② Run OP2-Tools, and select the printer for firmware rewriting.
③ Under the “Option” menu, click on “Flash rom writer”.



④ The file selection window will open. Select the ROM data for rewriting, and click on the “Open” button.

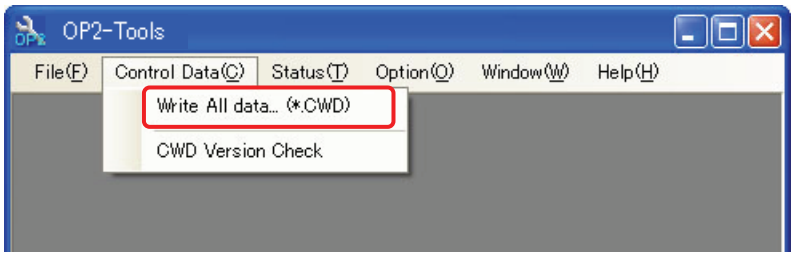


⑤ About 25 seconds after clicking on the “Open” button, the ROM data transmission will begin, and the firmware rewriting will begin. When rewriting the firmware, the green LED will blink.
∗ Depending on computer performance, the time to data transmission may differ slightly.
⑥ When rewriting is complete, the printer will beep, and the LED will turn green.
It is not necessary to reboot the printer.
⑦ Under the “Status” menu, click on “ROM Version”, then click on “Get”.
Check that the rewritten ROM version is correct.

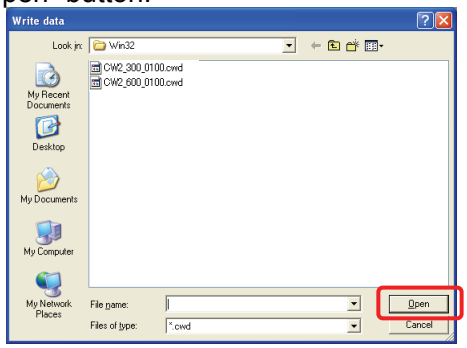


(2) Rewriting CWD Control Data

① Turn the printer ON.
② Run OP2-Tools, and select the printer for CWD control data rewriting.
③ Under the “Control Data” menu, click on “Write All data”.

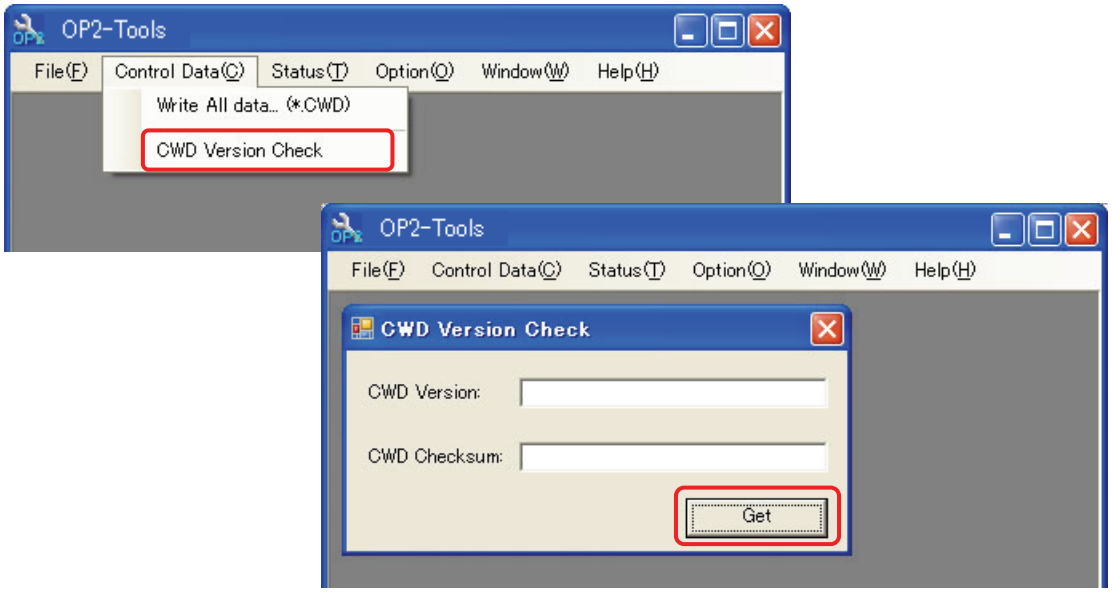


④ The file selection window will open. Select the CWD control data for rewriting, and click on the “Open” button.



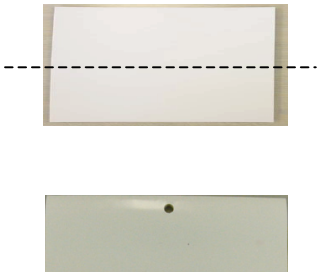
⑤ CWD control data transmission will begin, and the CWD control data rewriting will begin. When rewriting the CWD control data, the green LED will blink.
⑥ When rewriting is complete, the LED will turn green. (It is not necessary to reboot the printer.
（Unlike when rewriting firmware, the printer does not beep when complete.）
⑦ Under the “Control Data” menu, click on “Version Check”, then click on “Get”.
Check that the rewritten CWD control data version and checksum are correct.
Finally, run a print to check that there are no problems.
If the print color is extremely light, it is possible that rewriting was not successful.

If the checksum is incorrect, the rewrite was not successful.
Run the rewrite again.



8, Adjusting the Ribbon Feed Tension

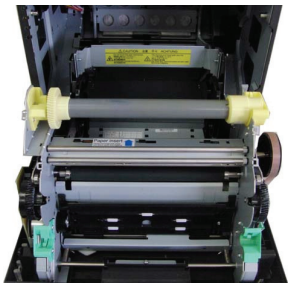
【Advance preparation】Ready the tension measuring ribbon.
Make a ribbon with the diameter φ20.7 for the supply side.



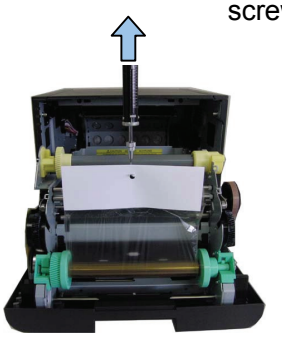
Fold the paper in half, open the tension gauge hole, and affix it with double-sided tape.

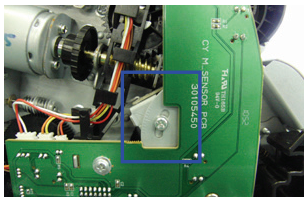
Diameter φ20.7 ribbon (This can be made easily by rolling back 6 frames on a finished ribbon roll)

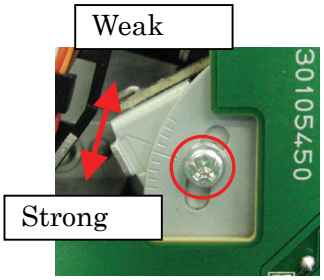
① Open the printer, remove the mechanical cover L.
② Set a φ20.7 bobbin with RFID (check the read value with -20～12 TOOLS) and Paper in the printer.



③ Close the printer, and turn the power ON.
④ After it is standby mode, turn the power OFF.（This is to maintain the ribbon tension setting）
⑤ With the power OFF, open the printer and adjust the tension by setting the tension adjustment jig and loosening the tension adjustment screw.
Pull the ribbon at a speed of 1.5 seconds per color.
screw torque.65±0.05N・m







Ribbon to use	PC size
Supply side Ribbon diameter	φ20.7
Panels left on ribbon	6 panels
RFID Value	-20～12 Check with TOOLS
Pull speed	1.5 sec / color
Setting tention	400 g ±50g

Chapter 5 Trouble Shooting

1, Check the printer status with the printer LED display

If there is an error, first check the printer status with the LED display

LED Display

LED Display	Paper end *1	Ribbon end *1	Cover open and paper none.	Cover open
Power	●	●	●	●
Ribbon		✸		
Paper	✸		✸	
Error			✸	✸
Solution	Put in a new roll of paper.	Put in a new roll of ribbon.	Set the paper properly and close the front cover.	Close the front cover.

LED Display	Paper error	Ribbon error	Head Cooling (Thermal Protect)	Othe system error
Power	●	●	✸	●
Ribbon		●		
Paper	●			
Error	●	●		●
Solution	Free the paper, and reset it correctly	Fix the ribbon, and set it correctly	Auto-recovery	Reboot the printer. (turn off, turn on) Get the printer status with PC, and check the type error.

※● indicates lit, ✸ indicates flashing, and blank is not lit

*1 Exchange the paper and ribbon as a set.

Refer to the User's Manual for how to deal with ribbon sticking, ribbon tear, and paper jam.

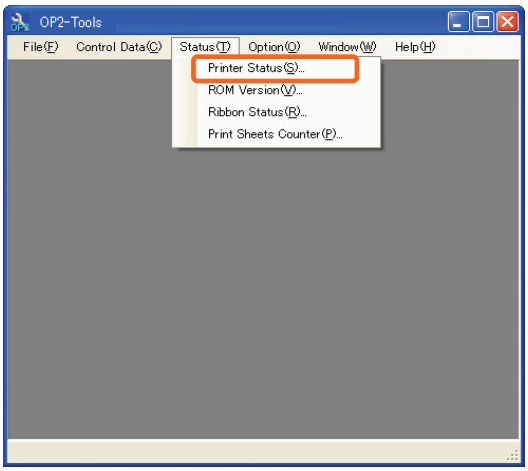
2, Check the printer status from PC.

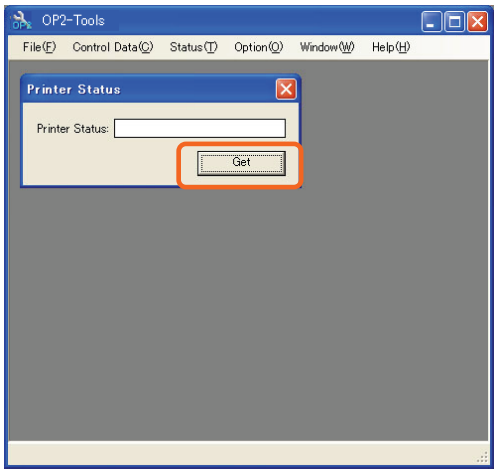
If the LED display of the printer is an error, get the printer status with OP2-Tools, and check the type of error.

（1）Getting the Printer Status

① Run OP2-Tools.　In the “Status” menu, click on “Printer Status”.

② Click on the “Get” button. This will display the printer status.





【Display】

Display	Contents
Idle	Idle state, available data receiving.
Printing	Printing state
Head Cooling	Head cooling down, Auto cancellation.
Paper End	Paper end（ Paper supply trouble）
Paper Jam	Paper Jam, (Paper supply trouble)
Ribbon End	Ribbon end　（Ribbon supply trouble）
Ribbon Error	Ribbon sticking, Ribbon　tear, Trouble of ribbon feed
Ribbon Tension Error	Problem with ribbon tension
Head Position Error	Problem with head position, Problem with pinch up/down mechanism
Head Voltage Error	Problem with head voltage
Illegal Head Temperature	Problem with head temperature
Power Supply Fan Stopped	Problem with power supply fan
Cutter Error	Problem with cutter
Illegal Media Temperature	Problem with media temperature
RFID Module Error	Problem with RFID module
Paper definition Error	The mismatch of received data and media size
SYSTEM ERROR	Some other system error
ERROR	It is not possible to communicate between the PC and the printer.

For details and dealing with errors, check "3. Error Causes and Solutions"

3, Error Causes and Solution

Try to determine the cause of the error from the error display and actual problem, and rectify it.

Paper End

Event	Cause and Solution	Reference
Paper end （Usually operation）	Replace the paper	User's Manual
There is still media remaining, but Paper End is displayed	Faulty of sensor adjustment. → Adjust a sensor	Ch.4 item 2
	Faulty paper end sensor → Replace	Ch.2 4-65, 4-64
	Faulty sensor board → Replace	Ch.2 2-12
	Check the connections of harness connecting the sensor and the sensor board or replace.	Ch.2 2-12, 4-61
	Check the connections of FFC Connecting the drive board and the main board	Ch.2 2-16, 2-17
	Faulty driver board → Replace	Ch.2 2-10
	Faulty main board → Replace	Ch.2 2-35

Paper Jam

Event	Cause and Solution	Reference
Paper feeding motor stopped.	Incorrect harness connection	App Harness Diagram
	Faulty driver board. Check the damage of harness → Replace harness and driver board.	Ch.2 2-10, 4-60, 6-21
	Damage of paper feeding motor → Replace the motor	Ch.2 6-30
	Faulty main board → Replace	Ch.2 2-35
Media feed motor is spinning, but the media isn't advancing	Faulty paper feeding（damage of roller or bearing） → Replace	Ch.2 Item 4 Each roller
	Faulty pinch pressure → Faulty the spring	Ch.2 4-7
	Damage of paper rewind clutch or gear → Replace	Ch.2 4-55, 4-56, 4-57
The motor spins, and media is advanced, but paper edge cannot be detected.	Faulty of sensor adjustment. → Adjust a sensor	Ch.4 item 2
	PC mark sensor harness connection is faulty	App Harness Diagram
	Faulty PC mark sensor → Replace	Ch.2 4-66
	Damage of sensor board → Replace	Ch.2 2-12
	Faulty driver board or wiring → Replace	Ch.2 2-10, 4-61,2 -12
	Faulty main board → Replace	Ch.2 2-35
Paper End cannot be detected. Main motor is step out	Paper mark sensor harness connection is faulty	App Harness Diagram

※ It may be paper jam with the ribbon sticking . Please refer to Ribbon Error.

Ribbon End

Event	Cause and Solution	Reference
Ribbon end （Usually operation）	Replace the ribbon.	User's Manual
Faulty the ribbon rewind mechanism.	Ribbon rewind encoder is not functioning. → Faulty sensor board or harness.	Ch.2 2-30
RFID cannot be read.	Faulty RFID board or FFC	Ch.2 2-33, 2-18

Ribbon Error

Ribbon sticking（The ribbon stuck on paper.）

Event	Cause and Solution	Reference
Printing is done over an already-printed media.	Remove any blockage from around the paper feed exit on the front of the printer.	
Head-life cycle.	Wear to the head may be cause of ribbon tearing. → Replace the Thermal Print Head Assy	Ch.2 2-32
Condensation	This occurs when the printer or media set have been brought from cold to warm environments suddenly.	
Ribbon feed tension is incorrect.	Damaged ribbon supply assy. → Replace the ribbon supply assy.	Ch.2 5-3
	Damaged ribbon supply tension motor. Faulty the harness. → Replace the motor and harness.	Ch.2 5-25, 4-59
	Incorrect harness connection. Faulty connector.	App Harness Diagram
	Faulty driver board. → Replace	Ch.2 2-10
	Faulty main board. → Replace	Ch.2 2-35
Abnormal voltage of ribbon sensor.	Faulty of sensor adjustment. → Adjust a sensor	Ch.2 item 2
	Ribbon sensor harness connection is faulty.	App Harness Diagram
	Faulty ribbon sensor. → Replace	Ch.2 2-29, 4-65
	Faulty sensor board. → Replace	Ch.2 2-12
	Check the connections of harness connecting the sensor and the sensor board.	Ch.2 4-61
	Check the connections of FFC Connecting the driver board and the main board.	Ch.2 2-16, 2-17
	Faulty driver board. → Replace	Ch.2 2-10
	Faulty main board. → Replace	Ch.2 2-35
Ribbon is not taken up.	There is stress on the ribbon feed route. Check the rotation stress on the ribbon holder, etc. → replace	Ch.2 5-32, 5-33 6-13,62-35
	Incorrect harness connection.	App Harness Diagram
	Faulty driver board. →Confirm the drive substrate adjustment value. → Replace	Ch.4-5 Ch.2 2-10
	Damaged ribbon rewind assy. Faulty harness → Replace the ribbon rewind assy.	Ch.2 2-30
	Faulty main board. → Replace	Ch.2 2-35

Ribbon Tension Error

Event	Cause and Solution	Reference
Ribbon feed tension is incorrect.	Damaged Ribbon supply Assy. → Replace ribbon supply Assy.	Ch.2 5-3
	Damaged ribbon supply Assy motor. Faulty harness. → Replace the motor or the harness.	Ch.2 5-25, 4-59
	Incorrect harness connection, or it is damaged.	App Harness Diagram
	Faulty driver board. → Replace	Ch.2 2-10
	Faulty main board. → Replace	Ch.2 2-35
Ribbon feed home position sensor is not detecting.	Ribbon tension home positioning sensor if damaged. → replace the sensor board.	Ch.2 2-12
	Check the connections of harness connecting the sensor and the sensor board.	Ch.2 4-61
	Check the connections of FFC Connecting the driver board and the main board.	Ch.2 2-16, 2-17
	Faulty driver board. → Replace	Ch.2 2-10
	Faulty main board. → Replace	Ch.2 2-35

Head Position Error

Event	Cause and Solution	Reference
Head position motor is not turning.	Incorrect harness connection	App Harness Diagram
	Damage or life cycle of motor.	Ch.2 5-24
	Incorrect harness connection, or it is damaged.	Ch.2 4-59
	Check the connections of FFC Connecting the driver board and the main board.	Ch.2 2-16, 2-17
	Faulty driver board. → Replace	Ch.2 2-10
	Faulty main board. → Replace	Ch.2 2-35
Head position motor keeps turning.	Incorrect harness connection.of the sensor	App Harness Diagram
	Faulty the sensor. → Replace the sensor board	Ch.2 2-12
	Check the connections of harness connecting the sensor and the sensor board.	Ch.2 4-61
	Check the connections of FFC Connecting the driver board and the main board.	Ch.2 2-16, 2-17
	Faulty driver board. → Replace	Ch.2 2-10
	Faulty main board. → Replace	Ch.2 2-35

Head Voltage Error

Event	Cause and Solution	Reference
Abnormal power supply during printing. （A part of the printing disappears or the density decreases.）	Incorrect harness connection.	App Harness Diagram
	Adjust a head voltage.	Ch.4 item 1
	Damaged a power unit. → Replace a power unit	Ch.2 3-32
	Check the connections of harness connecting the sensor and the sensor board.	Ch.2 3-33
	Check the connections of FFC Connecting the driver board and the main board.	Ch.2 2-16, 2-17
	Faulty driver board. → Replace	Ch.2 2-10
	Faulty main board. → Replace	Ch.2 2-35

Illegal Head Temperature

Event	Cause and Solution	Reference
The media temperature cannot be detected.	Incorrect harness connection.	App Harness Diagram
	Faulty thermal print head. → Replace	Ch.2 2-32
	Thermal printer head. ⇔ Damage of Harness or FFC	Ch.2 2-15, 2-29
	Faulty main board. → Replace	Ch.2 2-35

Power Supply Fan Stopped

Event	Cause and Solution	Reference
Power fun stopped.	Incorrect harness connection, or it is damaged.	App Harness Diagram
	Faulty fun or life cycle. → Replace	Ch.2 3-40
	Damage or main board or driver board. → Replace	Ch 2 2-10, 2-35

Cutter Error

Event	Cause and Solution	Reference
The cutter stop in mid-cut, or keeps going and is damaged.	Cut scraps have accumulated in the Scrap Box, causing multi-layer cutting. → Discard the cut scraps.	User's Manual
	Incorrect harness connection, or it is damaged.	App Harness Diagram
	Faulty cutter or life cycle. → Replace the cutter	Ch.2 4-68
	Faulty sensor board. → Replace the sensor board.	Ch.2 2-12
	Check the connections of harness connecting the sensor and the sensor board.	Ch.2 4-61
	Check the connections of FFC Connecting the drive board and the main board.	Ch.2 2-16, 2-17
	Faulty driver board. → Replace	Ch.2 2-10
	Faulty main board. → Replace	Ch.2 2-35

Illegal Media Temperature

Event	Cause and Solution	Reference
The media temperature cannot be detected.	Incorrect harness connection.	App Harness Diagram
	Damage of harness. → Replace	Ch.2 4-62
	Damage of media temperature sensor. → Replace	Ch.2 4-63
	Faulty sensor board. → Replace the sensor board.	Ch.2 2-12
	Faulty or Check the connector between the sensor board and main board.	Ch.2 4-61
	Check the FCC connection between the driver board and main board.	Ch.2 2-16, 2-17
	Faulty driver board. → Replace	Ch.2 2-10
	Faulty main board. → Replace	Ch 2 2-35

RFID Module Error

Event	Cause and Solution	Reference
RFID cannot be read.	Incorrect harness connection.	App Harness Diagram
	Faulty harness. → Replace	Ch.2 2-18
	Faulty RFID board. → Replace	Ch.2 2-33
	Faulty main board. → Replace	Ch.2 2-35

Paper Definition Error

Event	Cause and Solution	Reference
The data transmitted from the host does not conform to the size of the media setting to the printer.	Ttransmit the data with paper size set by media size.	Printer driver Instruction manual
	Set the media (ribbon) united with the size of sending data.	User's Manual

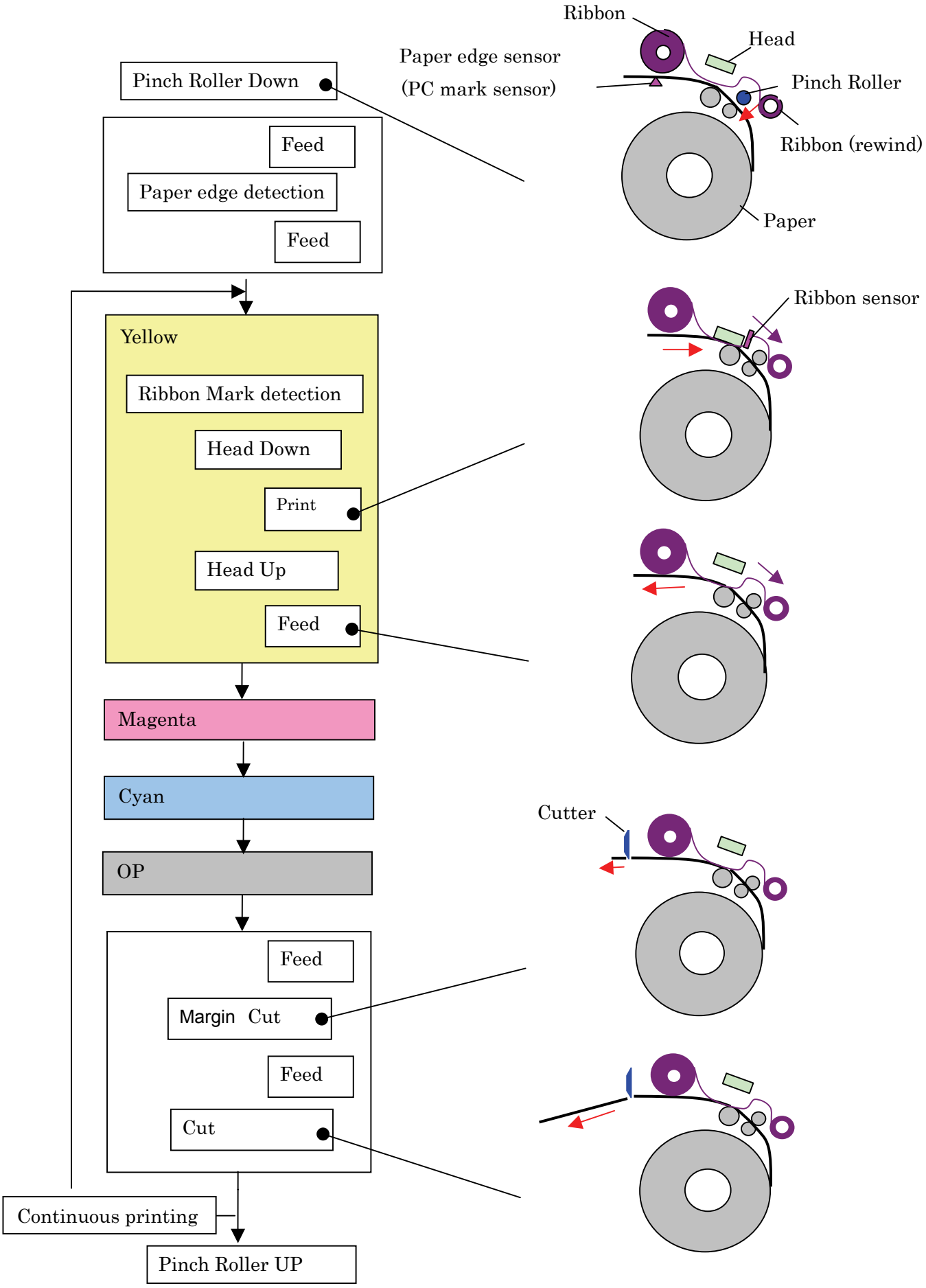
SYSTEM ERROR

Event	Cause and Solution	Reference
Faulty printer	Turn off the power supply of the printer and PC, then reboot.	User's Manual
	Faulty main board. → Replace	Ch.2 2-35

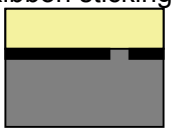
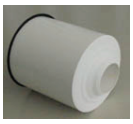
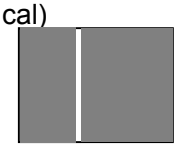
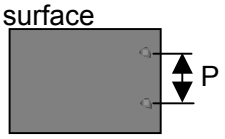
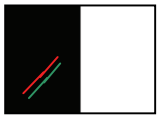
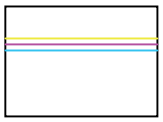
ERROR

Event	Cause and Solution	Reference
It is not possible to communicate between the PC and the printer.	Check the USB cable.	User's Manual
	Turn off the power supply of the printer and PC, then reboot.	User's Manual
	The printer driver is not installed. → Install the printer Driver.	Printer driver Instruction manual
	Faulty main board. → Replace	Ch.2 2-35

4、Movement Flow



5、Causes and Solution (Print quality)

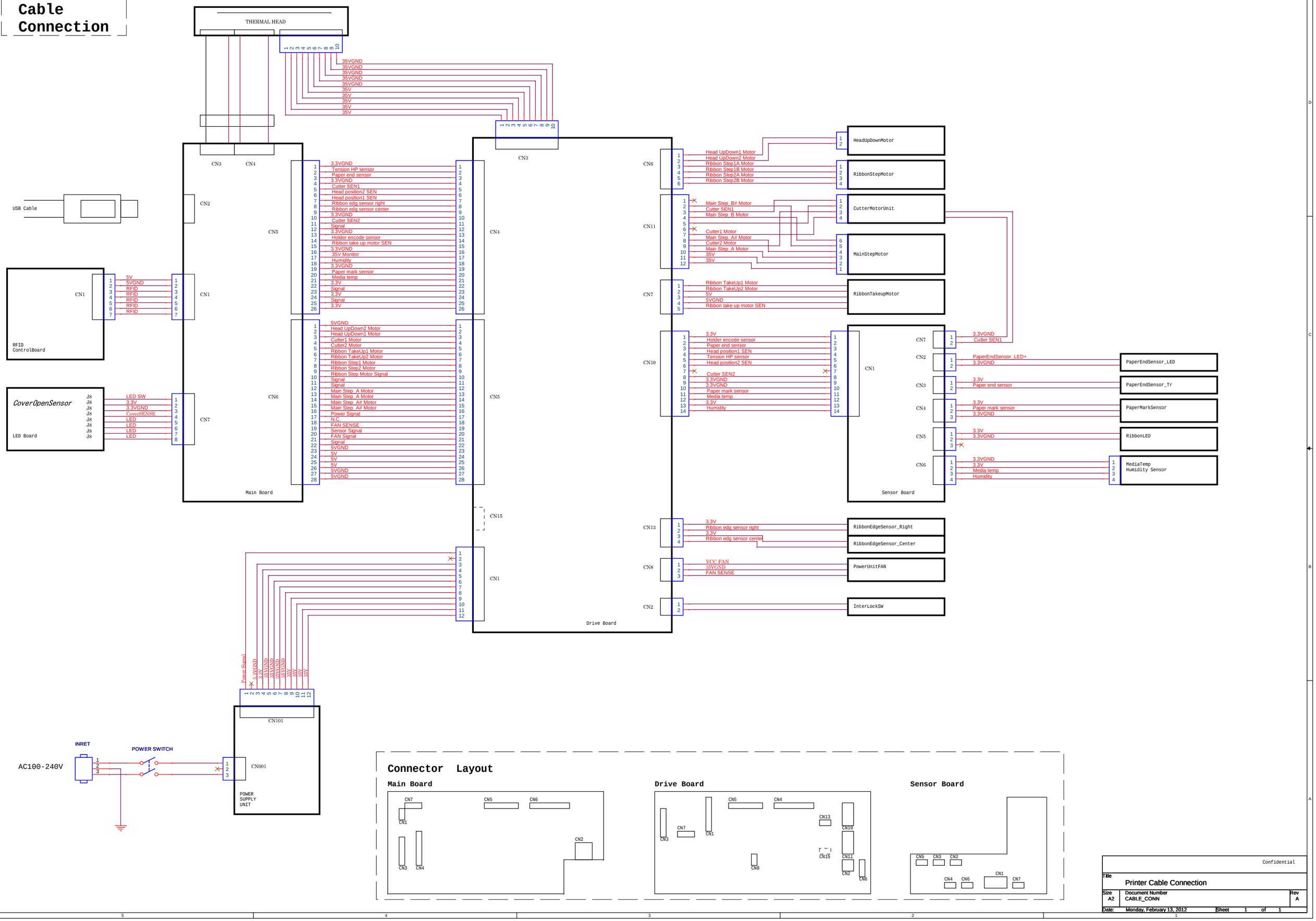
	Error type	Cause	Solution
1	Ribbon sticking 	Improper voltage for the ribbon	Adjust the sensor voltage using TOOLS position detection sensor
2	White margin (top or bottom)	Improper mechanism adjustment	Adjust the mechanism using TOOLS
3	White margin (left or right)	Problem with the setting	Reset the paper
		uneven ends 	Set the new paper
		The transmitted image size is small.	The transmission data size is made proper.
4	Unprinted area (vertical) 	Improper insertion of head FFC	Recheck the head FFC
		There is silicone on the head FFC	Clean the FFC
5	Unprinted area (spot)	There is dirt on the media	Clean the inside of the printer
6	Indentations on the print surface  (Dirt of a fixed interval)	There is dirt on the platen rolleror broken（P=51mm）	Clean the platen roller ,or Replace it
		There is dirt on the grip roller （P=38mm）	Clean the grip roller
		There is dirt on the pinch roller （P=38mm）	Clean the pinch roller
7	Ribbon wrinkle 	Wear and tear of the head	Change the head
8	Register slippage 	There is dirt on the grip roller	Clean the grip roller
		Life of the paper feed mechanism	Replace it
9	Faded Print	The head pressure is not proper.	Check Head Flame Assembly and the head
			Replace the Head Flame Assembly
		The head offset is not proper.	Replace the head

Chapter 6 Appendix

Information on servicing the printer

For questions regarding operation and servicing of the printer, contact the dealer where the printer was purchased.

Cable Connection



Connector Layout

Main Board

Drive Board

Sensor Board

Confidential

Title: Printer Cable Connection		
Size: A2	Document Number: CABLE_CONN	Rev: A
Date: Monday, February 13, 2012	Sheet 1 of 1	